

JUNE 1955

flow

MATERIAL HANDLING

Production • Automation • Packaging • Shipping

Frank R. Simpson,

Dir. of Research & Development,
The Kuljian Corp., Details
the Scope of Material Handling
Activities & Opportunitiespage 63

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Automation:
Friend or Foe?page 70

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Lower Maintenancepage 72

Can You Afford
a New Warehouse?page 76

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for Air Freightpage 116

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too Costly?page 122



Further Horizons in Material Handling page 63

Expanding opportunities for improving handling



NEW—For Smaller Vehicles



VICKERS HYDRAULIC POWER STEERING



SERIES S22 BOOSTER

LOW COST

Vickers Series S22 is a new, streamlined steering booster built especially for smaller vehicles. The design permits high production economies . . . and these economies are passed on to vehicle manufacturers.

SUPERIOR PERFORMANCE

The Series S22 has excellent operating characteristics . . . providing smooth, easy, fingertouch steering under all conditions. Obstructions, chuck holes, blown tires, etc. cannot spin the steering wheel or jerk it out of control on vehicles equipped with this Booster. Safer in traffic . . . on the farm . . . in the plant.

SIMPLIFIED DESIGN

Servo valve is simplified and smaller. Ease of servicing is another advantage.

EASY INSTALLATION

Oil connections can be placed in any one of four positions (90° apart) with respect to ball stud. This and the compact design make installation exceptionally easy and reduce its cost.

NEEDS LESS SPACE

Design is unusually compact and streamlined. Series S22 will go into a minimum space and usually requires little or no linkage change.

DEPENDABLE

All the "know-how" acquired in

Vickers more than 25 years experience with hydraulic power steering has gone into the design and manufacture of the Series S22. Vickers hydraulic equipment of all kinds has a remarkable record of dependability. This booster is no exception.

ASK FOR NEW BULLETIN

A new bulletin gives more information on the Series S22 together with appropriate Vickers Pumps and typical circuit diagrams. Send for Bulletin M-5107.

For heavier steering applications and longer piston strokes, use Vickers Booster Series S23 (see Bulletin M-5106) or Model S6-315 (see Catalog No. M-5101).

VICKERS Incorporated

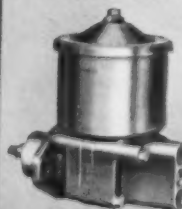
DIVISION OF THE SPERRY CORPORATION

1538 OAKMAN BLVD. • DETROIT 32, MICH.

Application Engineering Offices: ATLANTA • CHICAGO AREA (Brookfield)
CINCINNATI • CLEVELAND • DETROIT • HOUSTON • LOS ANGELES
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ROCHESTER • ROCKFORD • SAN FRANCISCO AREA (Berkeley)
SEATTLE • ST. LOUIS • TULSA • WASHINGTON • WORCESTER

VICKERS SERIES VT16

VANE TYPE PUMP



This is the pump normally used with the Series S22 Booster. It has integral volume control and relief valve, and oil reservoir. The vane type design delivers more oil with less power. Automatic wear compensation and hydraulic balance contribute to much longer life with minimum maintenance. No-load starting is another advantage in cold weather.

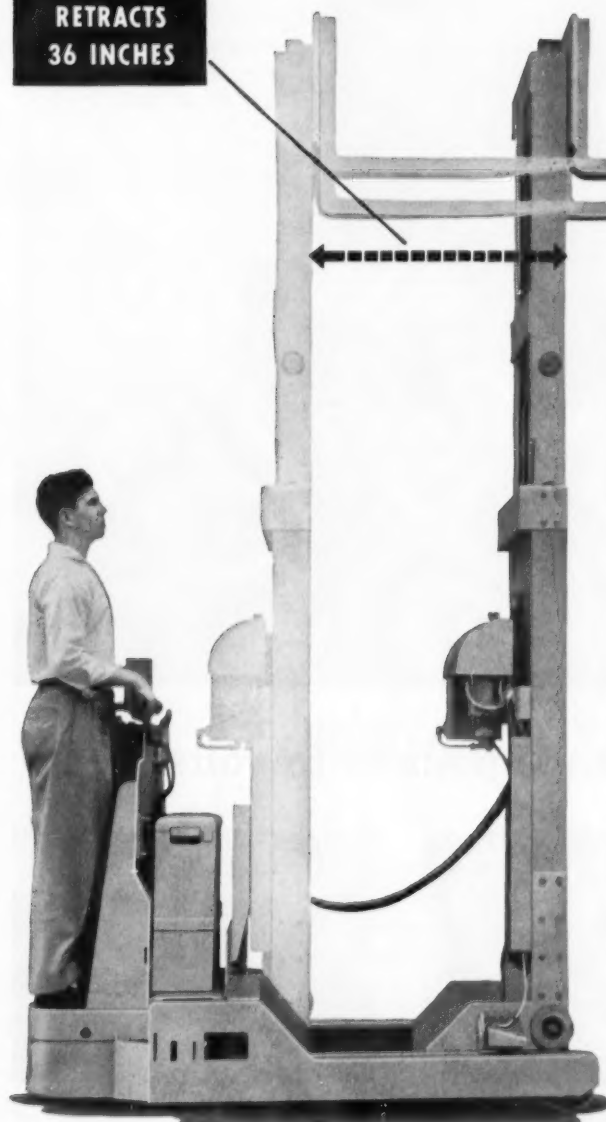
7179

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Circle No. 145 on Reader Service Card for more information

New Retractable Mast Type Automatic TRANSVEYOR SAVES UP TO 40% STORAGE SPACE

ENTIRE MAST
RETRACTS
36 INCHES



Handles Both Skids and Pallets of Various Widths up to 4000 lbs. capacity. Here's a truck designed for plants where aisle space is at a premium. Easily maneuvered into position—forks are raised to position for picking up load and, with a touch of a button, the entire upright section moves toward the load while the truck remains stationary. After the pallet is engaged—press another button and the entire upright section retracts.

Thus, working space saved is actually the full length of the load. In addition...

The New Transveyor Gives You ALL These Advantages!

FEATURE	BENEFIT
1. Balanced Action.	No frame distortion—eliminates chassis wear.
2. Two steering wheels.	Equal sized drive and idler wheels steer together—permits inching in 1st speed—eliminates tire "scrubbing" caused by free-caster wheels.
3. Equalized load distribution.	Movement over inclines or uneven floors without excessive chassis distortion.
4. Finger-tip controls.	All controls except steering conveniently placed at right hand of operator.
5. Fullmagnetic control with plug-proof protection.	Fool proof operation. Prevents sudden reversal of direction.
6. Lowest center of gravity.	Assures greatest degree of safety.
7. Two oversized ball bearing steering turn tables.	Insures longer life and lower maintenance cost.
8. Entire mast extends and retracts.	Load remains horizontal—deflection virtually eliminated.
9. Crowned bearings.	Maintains accurate carriage travel.
10. Heavy section rolled Manganese alloy steel uprights.	Better wearing quality—greater rigidity, proper flange strength.
11. Easy battery removal.	Can be removed from top or either side.
12. Single hinged panel protects power unit.	Facilitates maintenance-service—minimum down time—lowers up-keep costs.
13. Exclusive electrical system.	Lowest current consumption—up to 45% less current used in lifting loads.

GET ALL THE FACTS—MAIL THIS COUPON TODAY ♦

Automatic

WORLD'S LARGEST EXCLUSIVE BUILDER OF
ELECTRIC-DRIVEN INDUSTRIAL TRUCKS

JUNE, 1955

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Automatic

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Chicago 20, Illinois

H-5

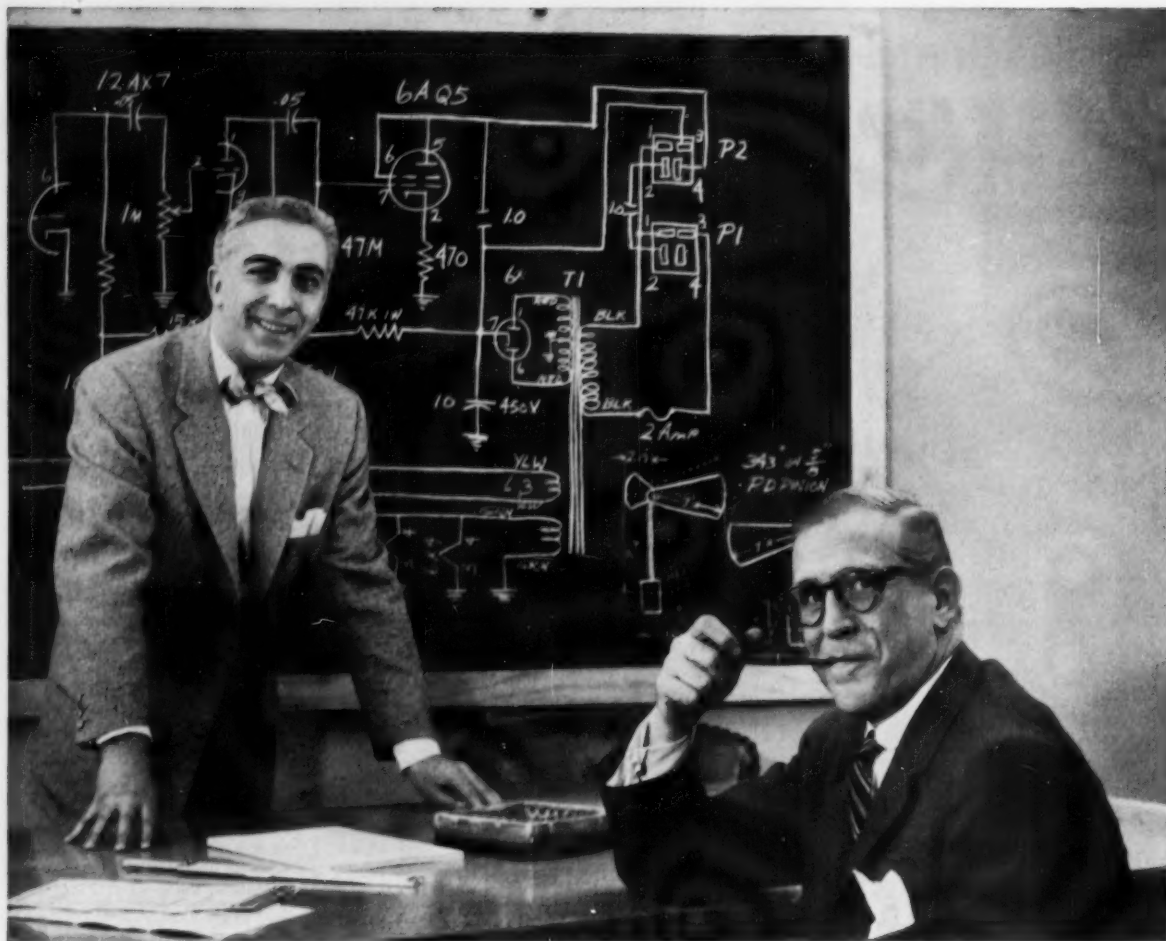
Without obligation, please rush me full details on your new Retractable Mast Type TRANSVEYOR.

Company Name.....

By.....Title.....

Address.....

City & Zone.....State.....



They wanted to change pounds to volts

After a hundred and twenty-five years of scale engineering it was easy!

Fairbanks-Morse Scale Engineers sought and found the practical way to adapt modern electronic principles to one of man's oldest commercial activities—the accurate weighing of items of trade.

The result is the new Fairbanks-Morse Electronic Scale that brings weighing information right to your desk from any spot that is too remote, too hot or too dangerous.

Only from Fairbanks-Morse can you get such originality and soundness of new design that assures outstanding performance. When next you need a scale ... or a pump ... an electric motor ... or a diesel engine, look for the famous F-M Seal. For 125 years it has stood for the finest in practical engineering. Fairbanks, Morse & Co., Chicago 5, Ill.



The Secret is this desk-sized electronic instrument that is direct reading; direct indicating—no manual switching or mental additions. Memory circuit prevents printing unless true balance exists.



The Result is that indications can be brought from remote locations to a central spot and integrated into other automatic electronic operations for faster, more complete utilization of weighing information.



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Tire Costs Go Down



—with Goodyear Job-Fitted Industrial Tires

WANT to get a 3-way benefit of longer tire life, less down time and better dealer service on industrial tires? Then start equipping your industrial trucks with Goodyears. They're *job-fitted* by tread design, by compound, and by size to deliver more performance with less down time. And you'll find your Goodyear Dealer is tops for fast service on both repairs and replacement orders. Check him and see—this week.

Our experts help solve your tough problems FREE

We maintain a staff of fully qualified technical experts to help you solve the tough industrial tire problems in your plant. For our free recommendations, write Goodyear, Industrial Tire Sales, Akron 16, Ohio.

USE THE RIGHT TIRE FOR THE JOB — BUY AND SPECIFY

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INDUSTRIAL TIRES

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JUNE, 1955



Look for this sign; there's a Goodyear dealer near you.



The Show's Over and—

IT WAS POSSIBLE . . .

IT HAS BEEN DONE . . .

THERE ISN'T ANYTHING LIKE IT . . .

**it does change the
materials handling picture**

**Industry Can't Believe
It Ever Happened**

Here It Is!

THE *Challenger*

\$387⁵⁰



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MANUFACTURING COMPANY • 900-08 Jackson Blvd., Chicago 7, Illinois

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June, 1955
Vol. 10, No. 9



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PRECISION METAL MOLDING
APPLIED HYDRAULICS
INDUSTRY AND WELDING
WELDING ILLUSTRATED
OCCUPATIONAL HAZARDS
COMMERCIAL REFRIGERATION AND AIR CONDITIONING

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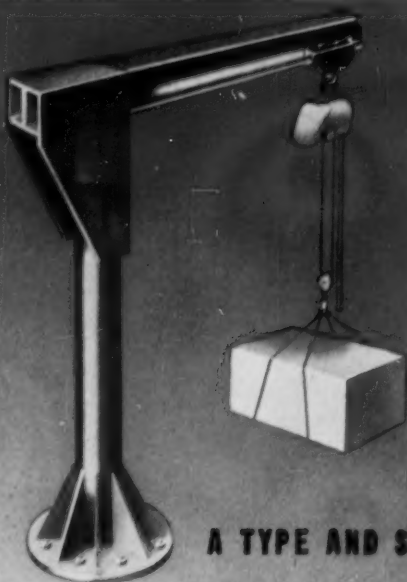
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CHICAGO TRAMRAIL JIB CRANES

*engineered for
easier handling
and long years
of service*

A TYPE AND SIZE FOR EVERY NEED

No. 339—Wall Bracket Type with 180° Rotation. Equipped with bronze bearing mounted in machined steel castings for accurate alignment and ease of rotation. Capacities 1,000 lbs. to 10,000 lbs. Lengths to 25 ft.



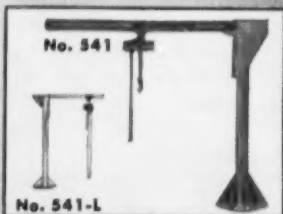
No. 339

No. 540—Self-Supporting Jib Crane with 220° Rotation. Bronze bearing in machined steel casting. Self-supporting column supplied with either bolted or imbedded base. Capacities to 10,000 lbs. Spans to 20 ft.



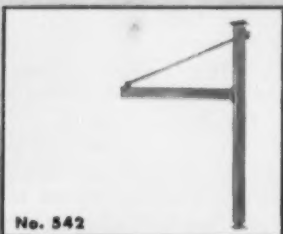
No. 540

No. 541—Self-Supporting Jib Crane with Complete 360° Rotation. Outstanding features include: machined steel bearing band welded to column to assure concentricity; four load carrying rollers with needle bearings mounted in head in machined cast steel trunnions; precision thrust bearing mounted in top of column to carry vertical load; two adjusting screws for leveling boom. May be equipped with collector rings for power supply for continuous rotation. Capacities to 10,000 lbs. Spans to 20 ft.



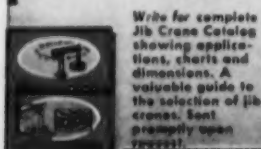
No. 541-L

No. 541-L—New Light Duty Free-Standing Jib Crane with 360° Rotation equipped with full floating roller bearings. Ideal for mounting on machine tools. Capacities 250 lbs. and 500 lbs. Spans 6 ft. to 16 ft.



No. 542

No. 542—Mast Type Jib Crane with 180° Rotation; top and bottom supports. Bronze top bearing and tapered precision roller bottom bearing insure easy positioning without drifting. Capacities to 6000 lbs. Spans to 20 ft.



Write for complete Jib Crane Catalog showing applications, charts and dimensions. A valuable guide to the selection of jib cranes. Sent promptly upon request.

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After initial forging, longer lengths are placed in special tiering-type racks for convenient truck handling.



Bar forging is complete with production of disc-type end. From here, loads are trucked on steel skids.



Smaller forgings are dumped by trucks with rotating forks into gravity-feed hoppers that discharge into heat-treat furnace.

ELPAR

TRUCKS

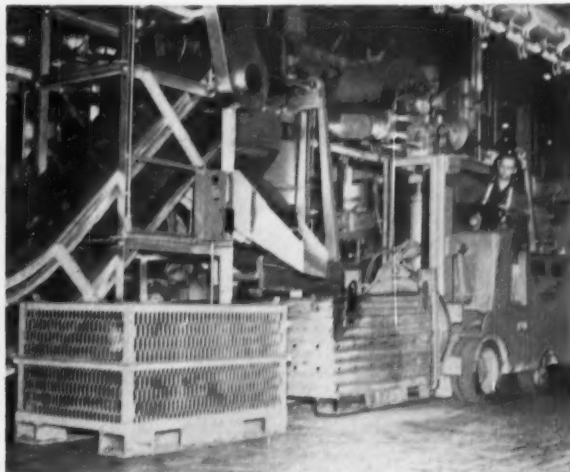
Synchronize Handling of Automotive Forgings

Handling is almost 100% mechanized at this automotive forge plant. Backbone of their system is a fleet of ELPAR fork trucks of 6,000 and 8,000-lb. capacities. The trucks permit precise control of the flow of materials to and from equipment. This is vital in mass production because no machine is better than its system of supply . . . Truck breakdowns would lead to costly bottlenecks in the entire operation, but ELPAR units stay on the job because of their *built-in dependability*.

GET ALL THE FACTS—Write for the ELPAR catalog and mention your industry.

THE ELWELL-PARKER ELECTRIC COMPANY

4236 St. Clair Avenue • Cleveland 3, Ohio



After shot blasting, forgings are discharged automatically into skid bins, then trucked to inspection stations.

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CONSULT



Adjustable

STORAGE RACKS

✓ SIMPLE and EASY to assemble
 ✓ NO WELDING ✓ NO BOLTING
 ✓ ECONOMICAL ✓ CONVENIENT

Palmer-Shile

adjustable storage racks, with double slots on vertical uprights set at angle for rigid non-sway support, give complete tiering range in single, double or multiple sections. Used for any storage application.

Adjustable members can be easily removed, and adjusted to any level desired. Braces are welded to front and back uprights of vertical panel by Palmer-Shile for the specified depth.

Get our cost of storage racks to meet your requirements.



CONSULT DIAGRAM

below for guide as to dimensions of racks and equipment needed.

FURNISH US WITH
 "H" (height) "D" (depth)
 "W" (width) of openings
 and LOAD
 per
 SHELF

Fill in...
 Tear off...
 and Mail...

DESIGNED AND MANUFACTURED BY

Palmer-Shile Co.

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550 Fifth Ave., New York 36, N. Y. Plaza 7-8774 • 612 N. Michigan Ave., Chicago 11, Ill. Michigan 2-7407
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 1209 Burlingame, Burlingame, Calif. Diamond 2-0823 • 6440 Fleet St., Los Angeles, Calif. Raymond 3-3733

Palmer-Shile Co., 16012 Fullerton
 Detroit 27, Michigan

Please give us cost of adjustable storage racks per dimensions and equipment specified:

"H" (height) _____ "D" (depth) _____

"W" (width) of openings _____

"VP" No. of vertical panels _____

"AM" No. of adjustable members _____ (pairs)

"C" No. of channels for skid leg support _____ (pairs)

"RS" No. of removable shelves required _____

LOAD PER SHELF _____

Individual _____

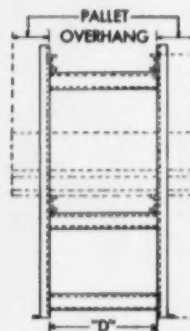
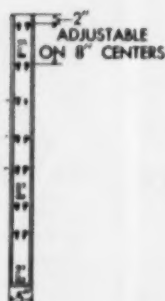
Company _____

Address _____

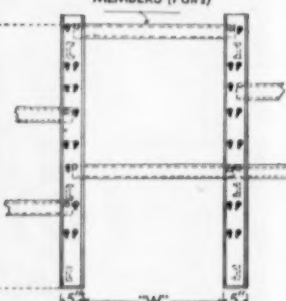
City _____ Zone _____ State _____

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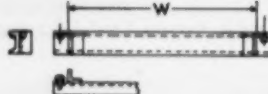
"VP" VERTICAL PANEL



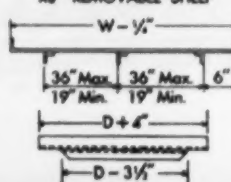
"AM" ADJUSTABLE MEMBERS (Pairs)



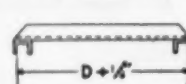
"AM" ADJUSTABLE MEMBERS (Pairs)



"RS" REMOVABLE SHELF



"C" CHANNELS FOR SKID LEG SUPPORT (Pairs)



Precision-Built



Factory Trucks

Save Time, Money and Effort

**COLSON TRUCKS
Save Time**



... by streamlining the flow of goods from raw materials, through production to storage or shipment of finished products.

**COLSON TRUCKS
Save Money**



... by cutting manhours spent in wrestling heavy loads around on hard-to-push, out-of-date trucks.

**COLSON TRUCKS
Save Effort**



... by letting easy-rolling COLSON wheels and casters float the load — even over rough, bumpy floors.

Whatever your materials-handling problem there's a COLSON truck, standard or special, to meet your needs — exactly. Write us or, better still, consult the yellow pages (under "Trucks-Industrial") for the COLSON office near you.

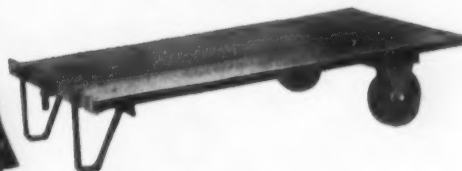
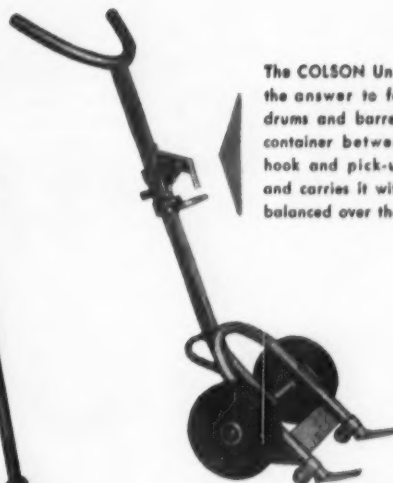
Famous Push-E-Z Platform Truck fully loaded starts and rolls with half the effort required by the average truck. It's the strongest hand truck ever built! Capacity 6000 pounds with metal or molded plastic wheels, 3000 pounds with cushion tread, rubber tires.



The COLSON Lift-Jack System easily doubles the efficiency of conventional hand trucks. Handling goods through production, in and out of storage, on and off freight cars or trucks, it lets one man easily do the work of two!



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THE COLSON CORPORATION

ELYRIA, OHIO

CASTERS • HAND TRUCKS • LIFT JACK SYSTEMS
HYDRAULIC, ELECTRIC AND MECHANICAL POWER LIFTS AND TRANSPORTS

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LET'S TAKE A CLOSE



Circle No. 34 on Reader Service Card for more information

LOOK AT LP-GAS...

Here are the advantages:

LONGER ENGINE LIFE!

LP-Gas burns clean, with nearly perfect combustion, leaves no carbon or lead deposits—does not dilute cylinder lubricant. Engines have run up to 8,000 hours before major overhaul was necessary.

LOWER MAINTENANCE!

LPG is dry—does not dilute crankcase oil, foul spark plugs. You get better lubrication—need fewer oil changes, fewer tune-ups. You can get 5 to 8 times longer oil life.

LOWER FUEL COSTS!

In many areas LP-Gas is 3 to 7 cents per gallon

cheaper than gasoline. Estimates show that for a 40-hour week, a 10-truck fleet could save from \$30 to \$70 in fuel alone.

NO OBJECTIONAL EXHAUST FUMES!

LPG burns clean, reduces fumes. Ideal for use in warehouses and other enclosed industrial areas.

GREATER OPERATING EFFICIENCY!

You get quieter, smoother operation, higher octane fuel, faster refueling (only 3 minutes to change tanks), much less downtime.

What about safety?

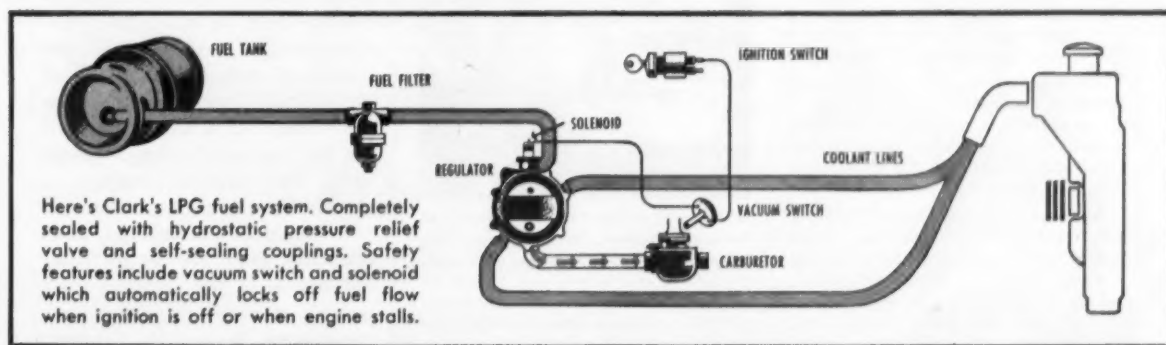
Clark factory installed LPG carburetion systems are fully approved for safety by Underwriters' Laboratories.

What's the best system?

Clark's factory installed LPG system is specially engineered from fuel tank to exhaust pipe. Engine is designed for maximum LPG benefits, has higher compression ratio, cold manifold, stellite valves and seats, positive valve rotators. Fuel system is sealed and designed for complete fuel combustion . . . top economy.

What's available?

Clark offers a complete line of U-L approved LP-Gas trucks in capacities from 2000 to 7000 lbs.



Industrial Truck Division
**CLARK EQUIPMENT
COMPANY**
Battle Creek 13, Michigan

**CLARK
EQUIPMENT**

For full details on Clark's advanced LPG system, tear out this coupon and attach it to your letterhead. No obligation, of course.

A BETTER BUY WITH LOCAL SUPPLY—*Genuine Clark Parts*

PUT TELEVISION TO WORK FOR YOU

**... it can keep
your materials flowing
smoothly... and stop
trouble before it starts!**

Here is Industry's newest "tool" . . .
and one of your most valuable!
Dage television is here to save you
time, trouble and money.

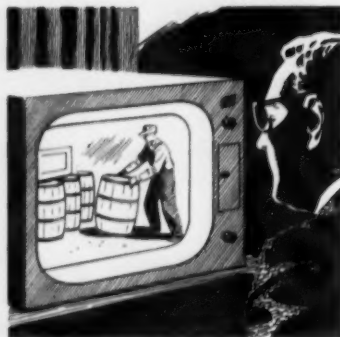
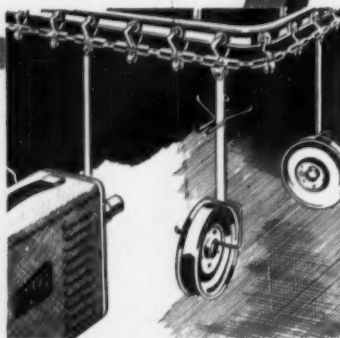
In supervising the flow of materials
... from ship to dock, from freight
car or truck to warehouse . . . from
one department to another in plant,
mill or foundry . . . the Dage TV
is Johnny-on-the-spot to detect
potential bottlenecks, to avoid
costly work stoppages.

Dage television also provides you
with an accurate last-minute check
of materials being shipped. Such
checks can be made from a central
point, saving you countless man
hours and manpower, too.

Whatever your material-handling
operation, a Dage television installation
offers you important money-saving
and time-saving opportunities . . .
and at an amazingly low installation
and maintenance cost.



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Thompson Products, Inc., Michigan City,
Indiana. An experienced industrial TV engi-
neer will be glad to help you . . . with no
obligation on your part. For complete details
on Dage installations write us for Booklet FF.

TELEVISION

Division of Thompson Products, Inc.
Michigan City, Indiana

LETTERS to the editors

SIPMHE—AMHS Merger

To FLOW:

There have been recent reports
that the Society of Industrial Pack-
aging and Material Handling En-
gineers and the American Material
Handling Society are considering
merging. In view of the rather
widespread circulation of these re-
ports, SIPMHE's National Officers
have authorized me to write this
letter outlining the official views
of our Society in this matter. It is
important to note that until now
no official statement has been made
by this Society.

(Note: Talk of merger by the
two Societies was first reported in
FLOW, March, 1955, pg. 101—
Ed.)

We, the National Officers and
Directors of the Society of In-
dustrial Packaging and Material
Handling Engineers, believe that
the best interests of Commerce,
Industry, Government, and par-
ticularly our respective members,
can be served if such a merger can
be brought about. There are many
good reasons, too numerous to
mention here, as to why such ac-
tion would be good for all parties
concerned. Suffice it that one of
the principle benefits would be the
achievement of a united front in
the furtherance of scientific pack-
aging and material handling as
modern management practice.

It should be remembered, how-
ever, that there are certain basic
differences in the character and
policies of these two national or-
ganizations. We believe, however,
that these differences, fairly and
impartially considered, can be
equitably resolved. . . . To this
end, therefore, the National Of-
ficers and Directors of SIPMHE
have authorized me to name a
committee to meet officially with
a similarly designated group rep-

the
revolutionary
NEW
HYSTER
"MONOMAST"
with panoramic visibility

— the greatest basic lift truck development in 25 years —

OPERATOR VISIBILITY NEVER BEFORE POSSIBLE ON A LIFT TRUCK...

Exclusive "Monomast" *panoramic visibility* makes possible entirely new techniques in lift truck operation. Operators can work faster—with far greater safety.

SAFER, STRONGER, FASTER. "Monomast", unexcelled for work-productivity — five years in development — the product of thousands of hours of Hyster Proving Ground and actual job-testing with emphasis on stability, rigidity and strength.

Exclusive "Monomast" *panoramic visibility* and faster lifting speeds means faster approach, more accurate placing of loads, less package damage — *far more tons moved per hour.*

Unique "Monomast" construction, consisting of two box-shaped sections, one telescoping within the other, provides unexcelled strength, rigidity and safety.

Hyster® standard job-attachments, including hydraulic, can be used with the "Monomast".

SEE THE DIFFERENCE. Ask your Hyster Dealer for advance information — he's listed in the yellow section of the phone book — or write direct.

Materials handling trucks from
1000 to 30,000 lbs. capacity.

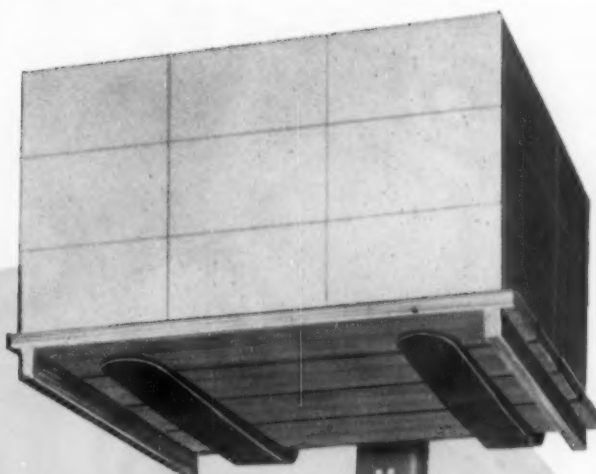
HYSTER COMPANY

2931 N. E. Clockamas Street, Portland 8, Oregon
1031 Myers Street, Danville, Illinois
1831 North Adams Street, EXPORT DIVISION, Peoria 1, Illinois
Hyster N.V., Nijmegen, The Netherlands

FOUR FACTORIES: PORTLAND, OREGON; DANVILLE, ILLINOIS; PEORIA, ILLINOIS; NIJMEGEN, THE NETHERLANDS

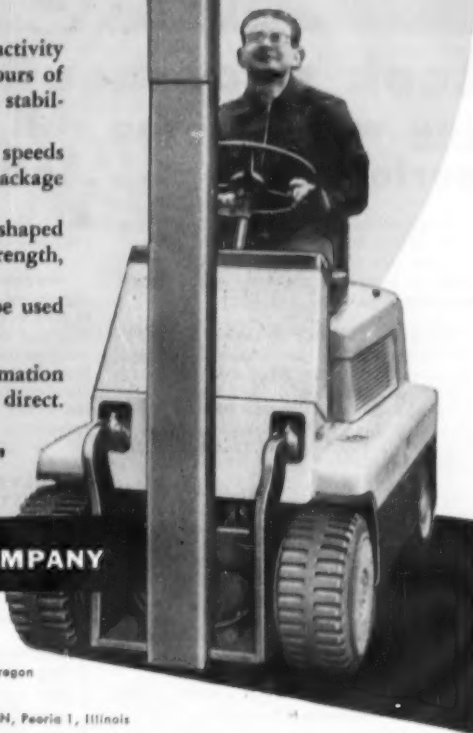
"MONOMAST" trademark registration applied for.

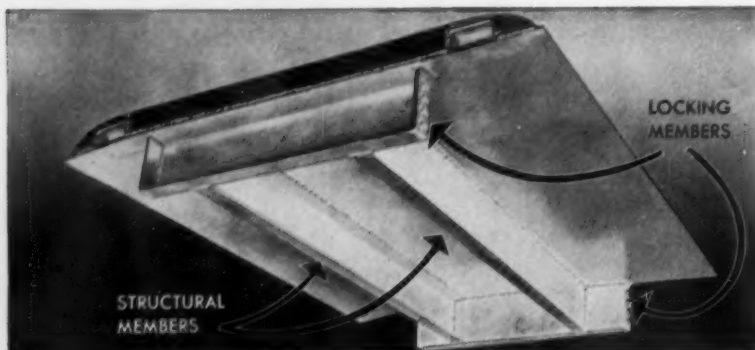
Circle No. 70 on Reader Service Card for more information



HYSTER

YC-40 and UC-30
LIFT TRUCKS
(4000 and 3000 lb.)





Look underneath — you can see why Magcoa rail Dockboards perform better . . . last longer!

The man in the photo above is pointing to important *extras* that make Magcoa rail Dockboards perform better and longer: Magcoa locking members and Magcoa structural members.

Magcoa locking members are extruded magnesium channels extending the full distance required for a safe, slip-proof fit between rail car and dock. All outer edges are precision welded to the bottom of the Dockboard, and a rugged magnesium plate is welded to each end of the channel for extra strength.

Unlike compromise designs and "short cuts" which require less metal and less manufacturing time . . . these Magcoa locking members withstand the brutal repeated thrusts of high speed lift trucks and heavy

loads. And hundreds of service reports are available to prove it.

Magcoa structural members are engineered to give maximum distribution of load weight across the entire Dockboard. Size and number of structural channels or I-beams used is determined by your specific loading requirements. Structural members are always positioned *within* the end limits of the locking members for protection. Service experience proves that this Magcoa feature assures better performance, longer life.

SOLVE CARLOADING PROBLEMS QUICKLY, AND PERMANENTLY . . . look into and *under* Magcoa Dockboards. A free new bulletin, available on request, is an easy step in that direction. Use the coupon.

MAGNESIUM COMPANY OF AMERICA

Materials Handling Div. • East Chicago 1, Ind.
Representatives in Principal Cities

DIVISION OFFICES:
NEW YORK 25, N. Y.
WASHINGTON 5, D. C.

PHILADELPHIA 18, PA.
HOUSTON 17, TEXAS
EL SEGUNDO (Los Angeles), CAL.

Circle No. 156 on Reader Service Card for more information

For your free copy of "Look Into And Under Magcoa Dockboards" . . . clip this coupon to your business letterhead, print your name clearly, and mail today to Magnesium Company of America, Materials Handling Division, East Chicago 1, Indiana.

LETTERS

Continued

representing AMHS to the end that we may study the matter of a merger and resolve it one way or the other as soon as possible. It should be borne in mind by those interested in such action, that under no circumstances can it be achieved without the consent of our respective groups.

Earl B. Candell
President, SIPMHE
Chicago, Illinois

Copies Requested Orders Filled

To FLOW:

We have been subscribing to FLOW magazine for some time now. In the month of October I clipped out an article entitled, "There Is A Caster For Every Job—Make Sure You Select The Right One".

I now find that I had only clipped half of the article. As we are engaged in revising the caster and wheel sections that appear in our catalog, this article will be of great benefit to us.

I will sincerely appreciate it if you would be so kind as to send me tear sheets on this complete article, or a full copy of the October 1953 issue of FLOW. Any effort on your part to expedite this request will be deeply appreciated.

Matt Jurich
McMaster-Carr Supply Company
Chicago, Illinois

To FLOW:

In the November issue of FLOW I read a very interesting article on LP-Gas entitled "Report on LP-Gas".

On the title page of this article you state that this is the third article on the subject. I would be very interested in obtaining two printed copies of each of those articles, if possible, for my file.

E. L. Ramsey
Ford Motor Company
Dearborn, Michigan

The copies requested have been forwarded with our compliments to Readers Ramsey and Jurich.

NEW

6 TON, SELF-PROPELLED



BANTAM!

IT SELLS FOR ONLY

\$11,500

**look what
you get in the
new CR-35!**

- Independent Travel. Forward and Reverse
- Turns INSIDE 40' Circle
- 360° Full Circle Swing
- Power Up & Down Boom Hoist
- Hydraulic Precision Steering
- All-Vision Cab
- Works with 9 different Attachments!

**Model
CR-35**



* AS SHOWN with crane boom, outriggers, hook block (less boom safety stops), f.o.b. Waverly, Iowa.



T-35A

C-35A

NO OTHER MACHINE of this size has ever offered so many time and money saving features! Lifting big loads . . . maneuvering in tight spots where other rigs can't go, the New BANTAM will let you realize greater speed and economy than you thought possible. You can't afford NOT to investigate the revolutionary New CR-35! **WRITE TODAY** for a completely illustrated, file-size brochure containing all the facts about the BANTAM CR-35 and how it can cut your materials handling costs!

CARRIER OR CRAWLER BANTAMS are outstanding performers, too! Mobile Carrier Bantam ideal for scattered assignments . . . travels up to 40 MPH! Crawler Bantam works in bad ground conditions where other rigs can't go . . . features 2-speed independent travel!

World's Largest Producers of Truck-Cranes and Excavators



MH-2

SCHIELD BANTAM COMPANY

251 Park Street, Waverly, Iowa

Please send me the **FREE Brochure** on Materials Handling with a Bantam!

Name _____
 Title _____
 Company _____
 Address _____

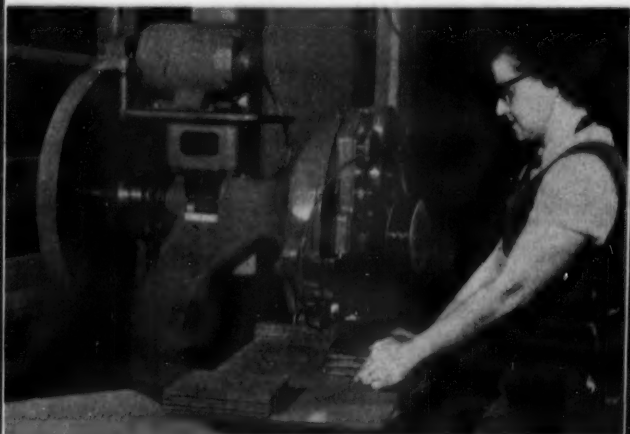
AIM for better packaging



AUTOMOTIVE—Gray iron castings are palletized for truck shipment. Storing and interplant handling are simplified. Idea No. 462.



FURNITURE—This packaging method and Acme Steel Strapping cut time and shipping weights over former crating methods. Idea No. 454.



CONTAINERS—Acme-Morrison Stitcher saves 25% in time over former gluing of corrugated interior packing. Idea No. 460.



METALWORKING—Acme Steel's famous Arcuate wire stitching method guarantees strong, safe closure of fibre boxes. Idea No. 456.



METALWORKING—Cooling blades for diesel intake fans are strapped on pallets with 2 to 4 straps for truck shipments. Idea No. 461.

and shipping ideas like these...and save!



APPLIANCES—Acme Steel methods assure safe transit by securely bracing carload shipments of home freezers. Idea No. 448.



WOODWORKING—Fast, packaging with FI Strapping Machine that automatically cuts, tensions and welds Steelstrap. Idea No. 452.

These Acme Steel Strapping and Wire Stitching *ideas in action* are paying for themselves many times over in low-cost, damage-free shipments and satisfied customers.

Each idea shown here, and hundreds of others, are the result of close cooperation and intelligent application of methods and techniques between an *Acme Idea Man and the shipper.

Acme Steel *ideas in action* can be applied to packaging and shipping problems in virtually every industry. If there are ways to save time, money and materials, your *Acme Idea Man can help you find them.

He's easy to reach. Just call your nearest Acme Steel office—or fill out the coupon below.

ask your *Acme Idea Man

He can help you by...

ANALYZING your present packaging and shipping practices in line with modern systems that reduce costs and assure safe arrival.

DEMONSTRATING in your plant the strapping and stitching equipment best suited for your own products, your plant, your needs.

RECOMMENDING in specific terms the steel strapping or wire stitching methods that will provide the greatest savings to you and your customers.



ACME STEEL PRODUCTS DIVISION

ACME STEEL COMPANY



2840 Archer Ave., Chicago 8, Illinois



send for these valuable catalogs on Acme Steel Strapping, Strapping Tools and Wire Stitching equipment. Get the full story on packaging and shipping. Use the coupon.

ACME STEEL PRODUCTS DIVISION, Dept. LM-65

Acme Steel Company

2840 Archer Avenue, Chicago 8, Illinois

Please send me further information on Acme Steel's Safe, Lower-Cost Shipping Methods. I am interested in ☐ Steel Strapping; ☐ Wire Stitching; ☐ having an Acme Idea Man call on me.

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

Circle No. 1 on Reader Service Card for more information



The drive that set a NEW STANDARD of
PERFORMANCE
for Fork Lift Trucks

No other fork lift truck can match the smooth-power performance of a Towmotor with TowmoTorque Drive. There's no clutch to throw, no gears to shift. The exclusive TowmoTorque Creep Control allows full power for lifting while positioning the truck. "Forward" or "reverse" can be preselected while truck is in motion for fast get-away! And TowmoTorque lasts the lifetime of the truck with less maintenance than any other drive.

TowmoTorque is the only drive engineered for all fork lift truck operations. It is available in Towmotor Fork Lift Trucks exclusively. Get the facts from your nearby Towmotor Representative, or write TOWMOTOR CORPORATION, Div. 806, 1226 E. 152nd St., Cleveland 10, Ohio.



FORK LIFT TRUCKS and TRACTORS
 SINCE 1919

Manufactured Only By Towmotor Corporation—The Pioneer Maker Of Fork Lift Trucks

Circle No. 124 on Reader Service Card for more information



Sales representatives of Faultless Caster Corporation got a preview of the manufacturer's new line of casters at the annual sales conference in Evansville, Indiana. In the foreground is Clarence B. Noelting, executive vice president, who addressed the group.

Lewis-Shepard Products, Inc. has appointed J. S. Gibb Clark exclusive representative in the Cincinnati, Ohio area. He previously represented the manufacturer in the Chicago area. Sales and service facilities are maintained at 4115 Edwards Road, Cincinnati.

Atlas Lift Truck Rentals, Inc. of Chicago has announced the appointment of Harold A. Jacobs to its sales staff.

Miller Equipment Company is the new Hyster Company dealer in western Michigan, with offices located at 538 Bond Avenue, N.W., Grand Rapids.

John B. Prince was recently named sales representative for The Stanley Works, steel strapping division. He will headquarter in Los Angeles, with sales responsibilities for southern California.

Training service "at the door" is being provided by the Tractor Division of Allis-Chal-

directional
arrows

for
**MATERIALS
HANDLING**

Light,
General
and
Heavy Duty
**FREIGHT
ELEVATORS**

DUMBWAITERS

**HOISTWAY
DOORS**

MODERNIZATION

MAINTENANCE

**PASSENGER
ELEVATORS**

Otis



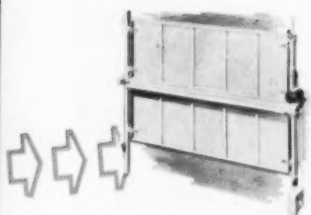
taking the extra stresses

Freight elevators need extra ruggedness of design to stand up under industrial power truck loading "punishment." The arrows in the diagrams at the left show how impact stresses vary when the elevator platform is level, below or above the landing. They also show the effects of a fast braking stop. These and the stresses of off-balance loading, and extra static loading are at work, not singly, but simultaneously and in endless combinations—as described in detail in Otis Heavy Duty Freight Elevators booklet B-705.



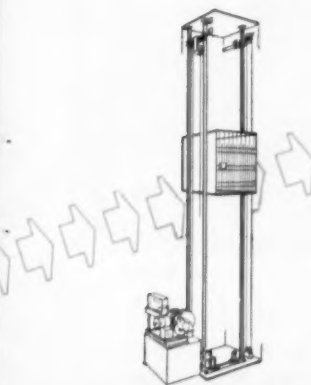
simplifying multi-floor handling

Freight elevators can easily be made to step up the efficiency of floor-to-floor production lines. The same electronic skill that developed automatic operatorless AUTOTRONIC® elevators for busy office buildings is ready to make completely automatic freight elevators an integral part of vertical production lines. This thinking can be applied to new buildings, to new elevators for existing buildings, and to modernizing outmoded light duty, general duty and heavy duty freight elevators.



time-saving hoistway doors

Otis power-operated biparting hoistway doors open while the car levels. This is a major time-saving feature. As compared with manual operation, automatic power operation is safer, quicker, smoother, and materially reduces round-trip time for busy freight elevators. The electric door operator does not depend on "coast" but drives the doors and car gates quietly to the fully opened and closed positions—as described in Otis Hoistway Doors booklet A-389 for new installations and modernization.

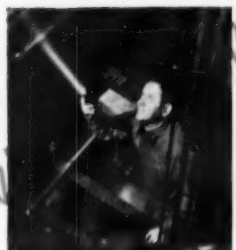


save costly building alterations

Otis Light Duty freight elevators have a semi self-supporting framework that permits installation in new and existing hoistways without reinforcing the building, or adding overhead supports, or building a pent-house. They can be used for any rise up to 35 feet at a speed of 25 feet per minute with lifting capacities of 1,500, 2,000 and 2,500 pounds. They're described in Otis booklet B-720.

value of a maker's pride

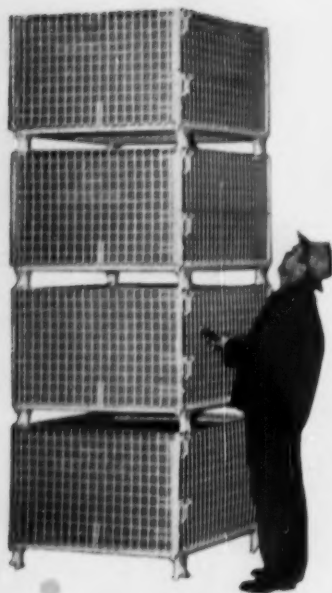
A perfectly performing installation is Otis' best salesman. That's why Otis maintenance is planned to keep elevators running like new—year after year! Preventive maintenance is engineered service by the maker that prevents slowdowns and breakdowns; extends elevator life by 50%; eliminates expensive, unexpected repair bills; keeps replacement parts readily available; and provides 24-hour-a-day service on a nationwide basis with factory-and-field trained men that have a knowledge of elevating that can't be matched.



OTIS ELEVATOR COMPANY, 260 11th Ave., New York 1, N.Y.

OFFICES AND SERVICE IN 295 CITIES ACROSS THE U. S. AND CANADA

Circle No. 148 on Reader Service Card for more information



Palletainers save floor space and stack higher with safety. Contents always protected—always visible. Palletainers are available in a wide range of models, styles and sizes to meet your needs.

Stack'em

... and save storage space

Faster, safer stacking is but one of the many advantages of USP Palletainers. Palletainers have become a standard... they meet all plant needs for faster, more efficient, low cost handling. They are a proved method of keeping materials, parts and finished products moving smoothly and safely through production, assembly, in and out of storage, interplant transport or long distance hauling. Palletainers in your plant will quickly demonstrate their amazing economies through savings in materials, time, space and man hours.

Palletainers equipped with half-drop and gate simplifies parts storage. Easy access, visual inventory, safer stacking make them an economical necessity.



Palletainers speed machine and production line operations. End gate eliminates "reach", products stay off floor, and fragile loads are protected.



PALLETAINERS

Manufactured only by... **UNION STEEL**

PRODUCTS CO.

ALBION, MICHIGAN



Gentlemen: Please send me my copy of the big, new illustrated USP Palletainer booklet at once.

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

☐ Please have your Palletainer representative contact the above.

Circle No. 128 on Reader Service Card for more information

SALES FIELD

Continued

mers Manufacturing Company. Each of the company's industrial sales and service territories has been provided with a two-man crew and motorized field training unit for diesel engine training.

George P. Millington, who joined Gould-National Batteries, Inc. in 1946, has been appointed Atlantic regional manager of the Industrial Division. He will continue to headquarter at 3701 North G. P. Millington Broad Street, Philadelphia, where he was previously district manager.



A new folding carton sales office has been opened in Kansas City, Missouri, by Robert Gair Company, Inc. The new facility, headed by James Howry, is located at 6107 Troost Avenue.

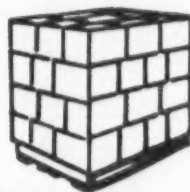
William H. Filter is now responsible for Monarch Rubber Company sales in the southern and western territories, due to his recent appointment as sales manager for those regions. Since joining the company in January 1954 he has served as executive assistant to the treasurer.

Edwin T. Goree has been appointed assistant sales manager, excavator distributors, for Bucyrus-Erie Company. In this capacity he will assist R. C. Adams, sales manager.

Recently named general sales manager of the Brainard Steel Division of Sharon Steel Cor-

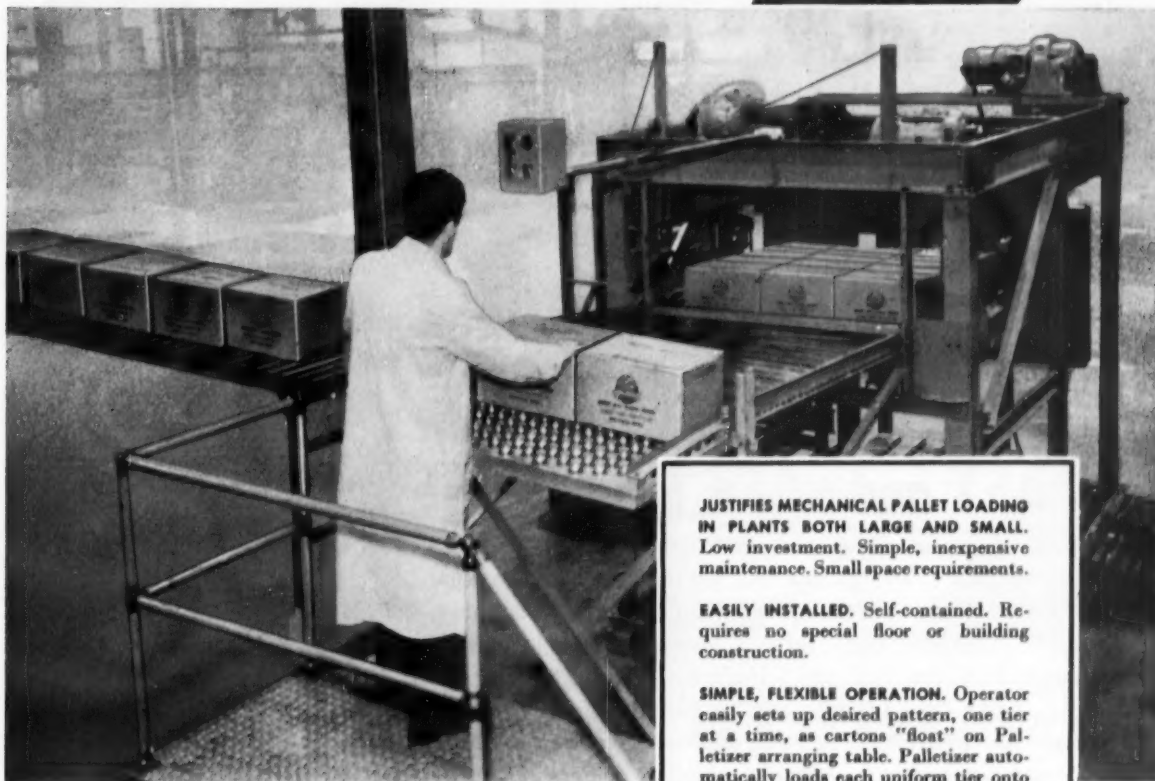
PRESENTING a major advance in fast,
safe, economical pallet loading with the

*Palletizer**



LOADING MACHINE by

GREER



Now, one man and a Palletizer by Greer can pallet load up to three or more times as many cartons or packages as possible by manual methods alone. Minimizes fatigue — no lifting or stooping. Reduces damage to packages and contents through less handling.

*Write today for helpful, informative bulletin
and name of your local Palletizer dealer.*

**JUSTIFIES MECHANICAL PALLET LOADING
IN PLANTS BOTH LARGE AND SMALL.**
Low investment. Simple, inexpensive
maintenance. Small space requirements.

EASILY INSTALLED. Self-contained. Re-
quires no special floor or building
construction.

SIMPLE, FLEXIBLE OPERATION. Operator
easily sets up desired pattern, one tier
at a time, as cartons "float" on Pal-
letizer arranging table. Palletizer auto-
matically loads each uniform tier onto
pallet in absolute alignment. When
pre-set number of tiers is reached,
loaded pallet automatically discharges
and new pallet rolls into loading position.

Number and variation of patterns
unlimited. Change patterns and loading
rate at will. Adjustable to any standard-
size pallet.

**HANDLES CORRUGATED CARTONS AND
WOODEN BOXES OF ALL TYPES . . .**
including open-type cases, reusable
cases, bottler's cases, stubbies, and
others. Also handles unglued flaps.

J. W. GREER COMPANY

Wilmington, Massachusetts.

PALLETIZERS are sold and serviced by authorized dealers throughout the U.S. and Canada

*Trademark

Patent Applied For

Circle No. 66 on Reader Service Card for more information

JUNE, 1955

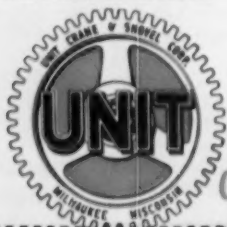
GREER



for FAST and SAFE Handling!

This sturdy, fast moving $\frac{3}{8}$ yard machine has a lifting capacity up to 16,000 lbs. . . . swings in a full 360° circle. With the New FULL RANGE VISION Cab, the operator can SEE what he is doing, at all times. Promotes greater safety . . . speeds up the job. Other Challenger features include: *Self-aligning, Replaceable Hook Shoes . . . Force Feed Lubrication . . . Full Floating Trunnion-Mounted Tapered Drums . . . Straight-in-Line Engine Mounting with Torque Converter . . . Interchangeability of Parts, etc.*

Unit models are also available in $\frac{1}{2}$ and $\frac{3}{4}$ yard Excavators . . . Cranes up to 20 tons capacity . . . Crawler or Mobile types . . . Gasoline or Diesel.



Send for Bulletin Now

UNIT CRANE & SHOVEL CORP.
6531 W. Burnham St. • Milwaukee 14, Wis., U.S.A.

Geared to boost your earnings!



A 8572-35-PC

Circle No. 130 on Reader Service Card for more information

SALES FIELD

Continued

poration was C. Allen Dolby. His new duties will be to expand sales within the four product divisions and to build sales of new products.

New regional representative of the Buda Material Handling Division, Allis-Chalmers Manufacturing Company, is Dan H. Stearns. For the past ten years Stearns was regional sales manager of Clark Equip-



Dan H. Stearns

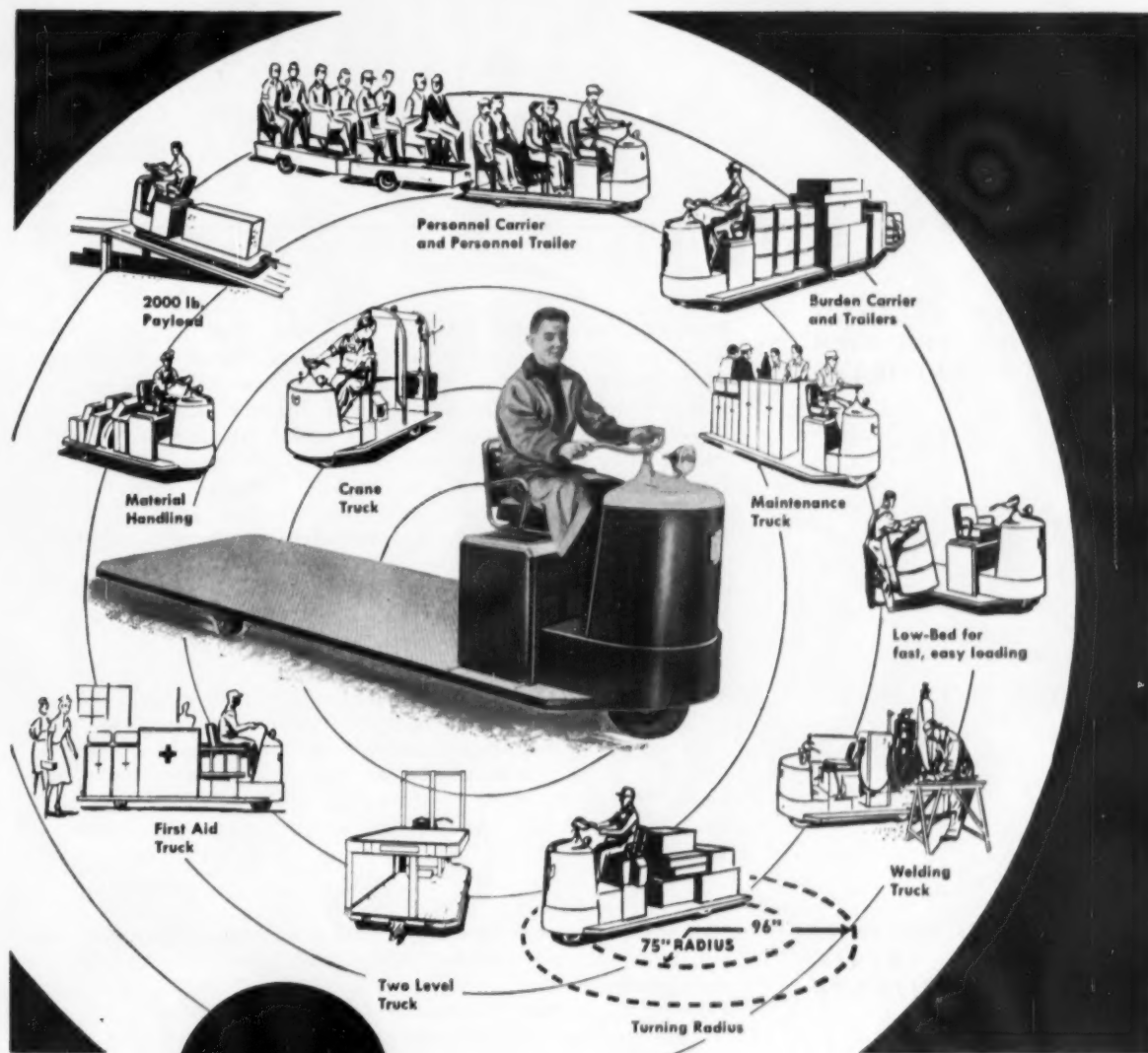
ment Company's Industrial Truck Division, with dealership responsibilities covering one-third of the United States and Canada.

Harold L. Wright recently became sales manager of Material Handling Inc., Pittsburgh distributor. He was formerly purchasing agent and office manager of Dravo-Doyle Co.

Don D. Sheriff of Tulsa, Oklahoma and Brewer Transmission Supply Company, St. Louis, Missouri, were recently appointed distributors by The Cambridge Wire Cloth Company.

New representative for Nutting Truck and Caster Company is James R. Douglass, 4930 Glenwood Street, Duluth.

Gene Schobinger has been appointed west coast regional manager for The Rapids-Standard Co., Inc. In this capacity he will be responsible for coordination of west coast sales and training programs in the states of Washington, Oregon and California.



This **VERSATILE** New Electric

Is cutting costs on dozens of expediting jobs!

For moving men and materials—smoothly and efficiently—this great new Low-Bed Electric has proved its superior versatility—power—maneuverability—durability—and economy. Pictured here are some of the successful jobs being handled by this rugged, reliable workhorse. As a burden carrier or as a specialized expeditor, the new Kalamazoo will deliver maximum tonnage—at absolute minimum cost per pound of payload.

- **Drive**—bevel gear and chain reduction, Timken roller bearings.
- **Motor**—24-volt or 32-volt series-wound—reversible—sealed lubricated ball bearings.
- **Controls**—Square D finger tip control—four speeds forward and four speeds reverse.
- **Frame**—all steel, welded into one rigid unit—stake pockets.
- **Brake**—hydraulic type—operated by foot pedal in addition to safety seat.



Gas Speed Trucks



Kal-Trucks



Xpeditors



KALAMAZOO
MANUFACTURING COMPANY
1827 Reed St. Kalamazoo, Mich., U. S. A.

FOR OVER 71 YEARS SERVING INDUSTRY AND RAILROADS ALL OVER THE WORLD

Circle No. 150 on Reader Service Card for more information

NEWS VIEWS TRENDS

NEW ENGLAND DISTRIBUTORS INCORPORATE

In an effort to establish a code of ethics and expand the interests of the group, a number of New England material handling distributors have formed a corporation known as Associated Equipment Distributors, Inc. Officers are C. C. Haddrell, Lee H. Long Associates, president; Clem Williams, Brodie Industrial Trucks, vice president; and William Paul, Kinco, Inc., treasurer. Directors include H. A. Ireland, H. G. Davis Company, Paul R. Grosjean, New England Industrial Truck Company, and John Mitchell, Field Machinery Company. According to the announcement, the majority of industrial truck distributors in the territory are already members of the association which is being expanded to include distributors in other fields of material handling equipment.

THEW BUYS BYERS

More than \$900,000 in cash was paid by The Thew Shovel Company for the plant and inventory of Byers Machine Company, Ravenna, Ohio. G. B. Smythe, Thew president, said a new subsidiary corporation, Byers Machine Inc., had been formed to operate the Ravenna plant. In addition to its new subsidiary, Thew operates plants in Bucyrus, Elyria and Lorain, Ohio, and has a majority interest in The Dixie Crane & Shovel Company of Harrisburg, Pennsylvania.

AUTOMATIC SYSTEMS CREATE EMPLOYMENT

"Automatic systems of industrial production create jobs rather than reduce the size of the working force," said John N. Hart at a recent management council conference at Marietta College, Marietta, Ohio. Director of employee relations for The B. F. Goodrich Company, Akron, Hart predicted that automation will be resisted nevertheless by all classes within industry on the grounds that industry is trying to remove the human element and replace men by machines. He said economists predict an increase of 22 million consumers during the decade with an increase in producers of only two million. "To maintain or improve our standard of living in the future," Hart claimed, "we must obviously multiply our ability to utilize the resources available to us."

PHILLIPS MERGES

Merger of Salem-Brosius, Inc. and Phillips Corporation was recently disclosed. In the future, Phillips will be operated as a division. The two companies combined manufacturing operations last year at Carnegie, Pa., but maintained separate corporate identities. John M. Phillips, Jr. has been named vice president of Salem-Brosius and assistant to President Ward A. Wickwire, Jr.

MATHEWS GOES ABROAD

An agreement has been completed by Mathews Conveyer Company with the Foreign Trade Division of New York Hanseatic Corporation for the sale of its conveyors in South America and many parts of Asia, Europe and Africa. The conveyer manufacturer is celebrating its 50th anniversary this year.



"Aisle-matched" to reduce idle space

THE ARTIST'S DRAWING above shows that *whatever the width of your warehouse aisles there's a Lewis-Shepard Master Truck to match*. Shown are four L-S Master Trucks right-angle stacking the same 2000 lb., 40" long load in various size aisles. *You* decide the most practical aisle width . . . then select the Master Truck that matches *your* requirements.

Remember, Lewis-Shepard offers you *every* type of truck *made* — from lightweight two-wheelers to huge fork lifts . . . the *only* complete line of materials handling trucks on the market. And, because your local L-S Representative has this *complete* line, he's in a better position to advise you . . . he's not biased in favor of one type truck or design.

Dependable L-S Master Trucks are ordered and reordered by "blue-chip" companies. Recent reorders include:

Electrical Goods Mfr.	105 L-S in use — reordered 7
Rubber Mfr.	13 L-S in use — reordered 2
Spark Plug Mfr.	20 L-S in use — reordered 1
Aluminum Mfr.	14 L-S in use — reordered 4

Illustrated are: (A) JackStacker, 4000 lb. cap. electric "walkie"; (B) Model "J", 2000 lb. cap. riding type at $\frac{1}{2}$ the usual cost; (C) Model "M", 3000 lb. cap., most compact of all riding types; (D) Model "E", 2000 lb. cap., fastest of all electrics.

Write for an L-S "Space Wheel" . . .
tells you aisles required for L-S Trucks and probable savings. Use the coupon.



"The Master" line

LEWIS-SHEPARD

136 Walnut St., Watertown 72, Mass.

- Please send
- ☐ L-S Space Wheel
 - ☐ (A) L-S Master JackStacker Catalog #34
 - ☐ (B) L-S SpaceMaster Model "J" Catalog #33
 - ☐ (C) L-S SpaceMaster Model "M" Catalog #35
 - ☐ (D) L-S SpaceMaster Model "E" Catalog #32

Name _____

Company _____

Address _____

Circle No. 77 on Reader Service Card for more information

VICKERS EXPANDING

Construction of a new engineering and administration building is underway by Vickers Incorporated. The 150,000 square foot building which will be located on a 76 acre site in suburban Detroit is scheduled for occupancy early in 1956.

**FUTURE LOOK:
ATOMIC TRAINS**

Nuclear-powered locomotives came closer to reality when officials of Baldwin-Lima-Hamilton Corporation and the Denver & Rio Grande Western Railroad Company signed a contract with the Atomic Energy Commission's chairman. Under the agreement, the two companies will provide personnel and equipment, and will finance the project. Already a year and a half has been spent in preparing the proposal of applying atomic energy to railroad locomotives.

MAGNETIC PURCHASE

Eriez Manufacturing Company has purchased the Niagara magnetic separator business and equipment of Richmond Manufacturing Company, Lockport, New York. The Richmond firm has closed its doors, and Niagara magnets are being manufactured by the new purchaser in Erie, Pennsylvania.

**REFRESHER
CONFERENCE**

The University of Pennsylvania's annual Wharton School refresher conference is scheduled June 13 to July 1. This year's theme is Work Simplification and Measurement in the Office and Factory, and will cover selected methods, techniques and problems of increasing productivity and reducing costs.

**MILWAUKEE GETS
NEW BOX FIRM**

Production is underway in a new corrugated paper box plant just completed by Evert Container Corporation. Built at a cost of \$1,250,000, including equipment, the 100,000 square foot building is situated on an 11-acre site in Milwaukee, Wisconsin. The new corporation is headed by President Charles W. Evert, a veteran of 30 years' experience in the corrugated box industry, and a past president of the Fiber Box Association. Evert was president of Downing Box Company from 1935 until July 1954, when he resigned.

**KRAFT MILL OPENS
ON GIFT SITE**

A community that donated a 275-acre plant site at Valdosta, Georgia, was honored April 14 in Appreciation Day ceremonies by National Container Corporation. The company recently began production in the \$25,000,000 Kraft pulp, board and paper mill, largest of six operated by the corporation. Daily capacity of the mill is rated at 500 tons per day, but this figure has already been substantially exceeded, according to company officials.

**MARKOL ACQUIRES
ALL-PURPOSE CO.**

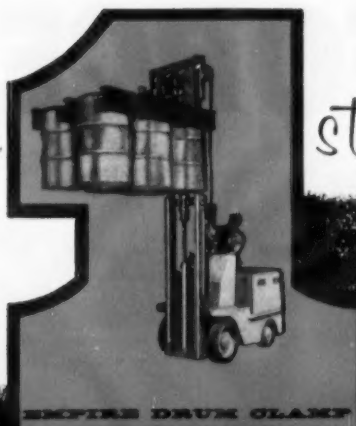
A new corporation, Markol Metal Products, Inc., was formed in Rochester, New York, to acquire the All-Purpose Metal Equipment Corporation. The new organization will continue to manufacture the All-Purpose line of equipment, according to Charles W. Kolmetz, president of Markol.

another

st in Materials Handling

Cut Costs With The New

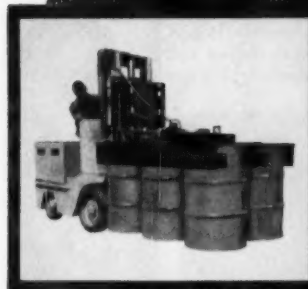
EMPIRE DRUM CLAMP



EMPIRE DRUM CLAMP

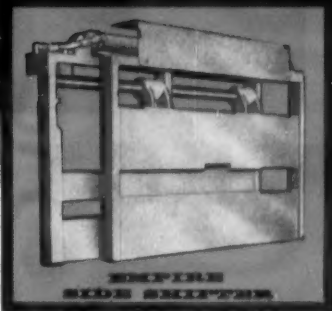


EMPIRE BEER
KEG CLAMP



EMPIRE DRUM CLAMP:

- Fits Easily on Any Fork Truck.
- Lifts 6 full drums at a time to height of lift and transports them.
- Bear-Hugs Clamp over top of drums safely holds them.
- Automatically positions drums into alignment for clamp.
- Greater utilization of storage space because attachment requires no room between drums.
- Stacks and unstacks without disrupting the pile.
- Requires 1 man to operate.
- No pallets needed.



EMPIRE
SIDE SHIFTER

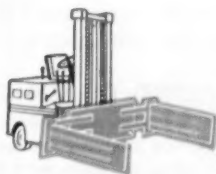


DEALERS: Cash in now on this revolutionary improvement in materials handling! Be the first in your area to offer the newest and most modern of Empire attachments. Every company will want them . . . anybody, in fact, who handles kegs, barrels or drums will need them! Some choice dealer franchises are still available. Contact us now!

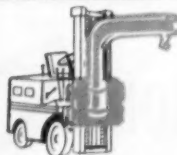
Why not 6 drums at a time?

Haven't you often asked yourself that question? We did too! So we sat down at our drawing boards and brought out the obvious answer — the Empire Drum Clamp, which handles SIX DRUMS OR BARRELS AT ONE TIME! What could be simpler arithmetic than this: You use *one-sixth* as many lift trucks to do your present handling job! Or, handle the Drums, Kegs or Barrels with your present equipment in *one-sixth* the time! Or, perhaps, with expanding operations in your plant, continue with your present equipment and handle *six times* as many drums as at present! Any way you look at it, it's money in your pocket. We also have bought out the Beer Keg Clamp and other new types of attachments seen in this ad.

(Attach to your business letterhead and mail)



EMPIRE attachments
made to handle
anything!



EMPIRE

attachments and
devices by

IRON WORKS INCORPORATED

116 King Street Dept. F-65
Brooklyn 31, N. Y.

Gentlemen: Please send me FREE catalog, price list and full information.

Name _____ Title _____

Address _____

City & State _____

FOR **BRUTE FORCE**

— OR —
FAST, GENTLE,
PRECISION HANDLING
OF BRITTLE
MATERIALS

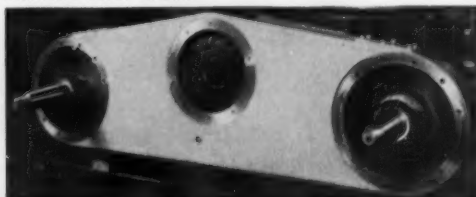


Versatile

DIAMOND ROLLER CHAIN



Huge motor grader, model 5D-190, made by Huber-Warco Co. of Marion, Ohio, is one of world's largest and most powerful. Both tandem drives and transfer drive are Diamond Roller Chains.



New Straddle Type Superlite Unloader manufactured by Builders Equipment Co. of Phoenix, Arizona, can cut delivery costs by half and more. Carriage is propelled smoothly, precisely with Diamond Roller Chain drives.

ALWAYS PRELOADED For many, many years, Diamond Chain has been preloaded after assembly for the purpose of bringing pin-bushing seating into stabilized relationship prior to field installation.



For delivering smooth, positive, dependable power from one shaft to another at high or low speeds, on long or short centers or at high or low horsepower, nothing meets the requirements as well as Diamond Roller Chain.

Diamond Roller Chains provide practically 100% efficiency on every application—for the life of the drive. They eliminate separating forces, heavy gear trains and extra bearings. They are lightweight, high strength, non-slip, economical, easy-to-maintain drives of the highest uniform quality.

Diamond Engineers will gladly help you with your power transmission problems. Write for Catalog 754 containing drive selection data.

DIAMOND CHAIN COMPANY, Inc.

Where High Quality is Traditional

Dept. 624, 402 Kentucky Avenue, Indianapolis 7, Indiana
Offices and Distributors in All Principal Cities

Please refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER

DIAMOND



ROLLER CHAINS

Circle No. 43 on Reader Service Card for more information

SIMPLICITY . . . balanced pan type conveyors can solve your materials handling problem

**From powdered coffee to hot castings,
materials are better handled on
Simplicity conveying
equipment**



This balanced pan type Model 32A Conveyor will fit where space is minimum, allow more headroom, and need little supporting structure.

Simplicity feeders and conveyors are speeding up the handling of materials and doing a better job in food and chemical processing plants, foundries, mines, quarries with the Simplicity balanced pan type conveyors. Simplicity units have replaceable liners, single or double carrying surfaces, and may be equipped with grizzly deck, screen cloth, or perforated plate for scalping or screening. These units are available in a large variety of sizes to suit your individual materials handling problem. They will provide you with steady product flow . . . when you want it and where you want it.

SALES REPRESENTATIVES IN ALL PARTS OF THE U.S.A.

FOR CANADA: SIMPLICITY MATERIALS HANDLING LIMITED, GUELPH, ONTARIO

FOR EXPORT: BROWN AND SITES, 50 CHURCH ST., N. Y. 7, N. Y.

Simplicity
TRADE MARK REGISTERED

ENGINEERING COMPANY • DURAND 5, MICHIGAN

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ACCO
products

WRIGHT Electric Hoists for Top Production, Easiest Maintenance

WRIGHT Speedway Electric Hoists—Frame 1, Frame 2 and Frame 3—are ideal **HOISTS** for handling production materials where the load requirements **ARE** from $\frac{1}{4}$ ton to 10 ton capacity. Their design includes many advanced **SAFE** operating features. Sound choice of components provides them with **EFFICIENT** balance for smooth running. Parts are designed and built to give **RUGGED** performance with a minimum of care. Plant operating men find them **ADAPTABLE** to almost every type of shop work because of the wide range of speeds, lifts and mountings.

The more particular you are in your selection of hoisting equipment—the more likely you are to choose WRIGHT

Write our York, Pa., office for Booklet DH-133B for more complete information on WRIGHT Speedway Hoists

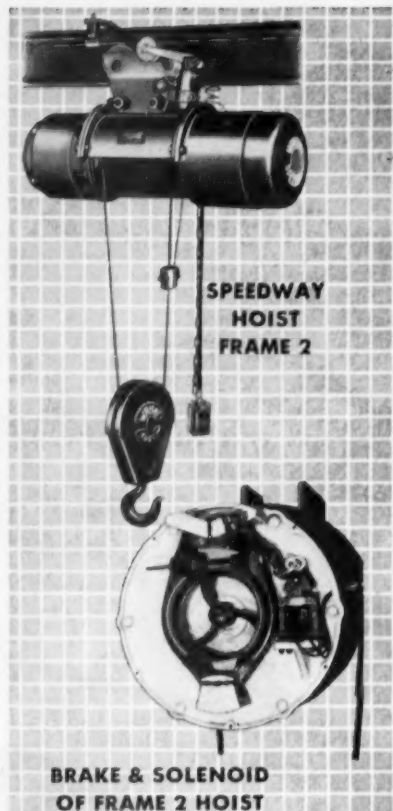
Send for Bulletin DH-504 for information on WRIGHT Electric Roller Chain Hoists



Wright Hoist Division AMERICAN CHAIN & CABLE

York, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

for
Better
Value

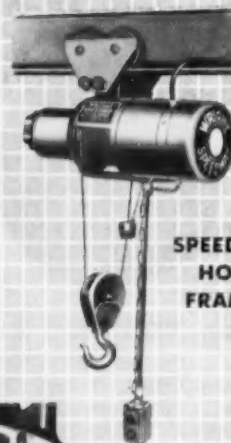
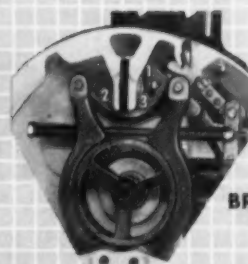


WRIGHT

Electric Roller Chain Hoist

- Fewest number of wearing parts
- Self-locking, double-worm gear acts as own load brake
- Spring-set, shoe-type motor brake, clam shell type
- Oversize precision ball bearings
- Forged steel-alloy hook, swings and swivels

• • •
COMPETITIVELY PRICED



MEN in the news

... at Allis-Chalmers Manufacturing Co.

The board of directors elected Robert S. Stevenson president to succeed the late William A. Roberts. Executive vice president since July, 1952, Stevenson began his career with A-C in 1933 as a salesman in Kansas City, and served in a succession of sales managerial positions. He became vice president in charge of the Tractor Division in February, 1951, and was later elected to the board of directors.



R. S. Stevenson

... at Stewart-Warner Corp.

Frank A. Hiter, senior vice president and head of the Alemit and Instrument division, died April 9 of a cerebral hemorrhage. He was 63. A native of Owensboro, Kentucky, he was completing 35 years of service with the company.

... at Manning, Maxwell & Moore Inc.

New members of the board of directors are J. Robert Kelley, executive vice president; Chester H. Butterfield, vice president of operations; and Charles A. Moore, vice president and treasurer.

... at Chrysler Corp.

Robert M. Franklin has been named communications coordinator and will serve on the staff

THE NEW WAYNE POWER SWEEPER IS HERE!



makes push-broom sweeping obsolete...

Sweeps over 100,000 square feet per hour

The new Wayne Power Sweeper will pay for itself every six weeks you use it... if you spend \$200 per week for plant house-keeping labor. If you spend \$50 per week, the Wayne will pay for itself every six months!

Rugged... Tough... Versatile... the new Wayne is designed and engineered to the same principles proved by Wayne Street Sweepers throughout the world.

Here, now, is the most efficient, most economical, most dependable sweeper ever built!

1. Sweeps over 100,000 sq. ft. per hour (Model LS-6). 2. Hydraulic dumping saves time and work. 3. Simplified design, solid construction reduces maintenance. 4. Sweeping widths: 24", 34", 36", 46", 58". 5. 20-Inch Curb Broom sweeps closer to walls and machinery. 6. Turns in own length. 7. "Filter-Vac" Dust Control (no dust bag to clean). 8. Largest Hopper Capacity.

Sold and Serviced in all principal cities

WAYNE

For literature write:
Wayne Manufacturing Co.
1214 E. Lexington Ave.,
Pomona, California
Dealer Inquiries Invited

World's leading producer of power sweepers for cities and industry

Circle No. 133 on Reader Service Card for more information

JUNE, 1955

← Circle No. 4 on Reader Service Card

EEZION ROAD TRAILER

ELIMINATES LOAD-LIFT

WHEEL YOUR LOAD STRAIGHT ONTO THE
EEZION AT FLOOR LEVEL



Then operate the hydraulic pump—hand or power—to raise the load platform—



The trailer is now ready for the highway. 13 1/2" ground clearance—over run braking servo; or pressure brakes on larger models.

No load on hydraulic system with platform raised.

Capacities: 15 cwt, 30 cwt, 3 tons, 5 tons. Special models for carrying cable drums—larger capacities to order.

Head Office:

OMIC Ltd., 9 George St., Baker St., London, W. 1. England.

New York Office:

Paliton Inc., 40 West 29th St., New York, N. Y.

Telephone: Murray Hill 5-9323 • Cables: Paliton, N. Y.

Circle No. 95 on Reader Service Card for more information

MEN IN THE NEWS

Continued

of C. L. Horner. A native of Texas, he was an instructor in radio in the Arts and Sciences department of the University of Houston, where he received an electrical engineering degree.

... at Schield Bantam Co.

Buel M. Wallis assumed new duties as general sales manager on April 18.

Previously he had been general sales manager of the Adams Division, LeTourneau-Westinghouse Company, Indianapolis.



Buel M. Wallis

His career with Adams covered a 25 year span, including positions as manager of the Washington, D.C. office, export manager and manager of Government sales.

... at Permacel Tape Corp.

President George C. Riegger has announced the appointment of Edgar A. Gaudette as controller. Herbert D. Lamar will serve as assistant controller, and Frank Seel as manager of general accounting.

... at Robert Gair Co., Inc.

Products development manager for the boxboard division is Mortimer J. Williams. A graduate of the University of Maine, he joined the company in 1948. He will headquarter in New York City.

... at Automatic Transportation Co.

New general sales manager is George A. Hinckley. For the past 18 months he has served as sales manager of the com-



Close to 3 yds. of ammonium sulphite handled by this 2¼-yd. MICHIGAN . . .

The bonus in the bucket pays for this machine fast!

Take another look at the bucket in the photograph. It shows a typical MICHIGAN* bucket-load, heaped-up well over the rated capacity of the bucket—nearly a 50% bonus. Translate this bonus into your daily production and you'll see why a MICHIGAN Tractor Shovel pays for itself fast: you simply move more material with a MICHIGAN.

Tremendous digging ability. Get the bucket blade into hard-to-dig material or under a heavy obstacle and "work" the bucket until you've got a heaping load. The two double acting bucket cylinders are actually powerful enough (if the blade is under an immovable object) to pull the back wheels off the ground! We'll match the MICHIGAN'S digging ability against any make

or type of Tractor Shovel, bar none.

Low-level bucket action. You can roll the bucket back only a few inches off the ground—heaping bucket-loads even when the material is scattered only a few inches high. And you can carry the full load *low*—your driver can see where he's going, he doesn't have to travel *backwards*.

No clutch—faster cycles. There's no clutch pedal on a MICHIGAN. You can actually shift between Forward and Reverse *while moving*: simply push the hand-lever on the steering column—MICHIGAN'S power-shift transmission shifts instantly. Power-shifting saves time and energy every cycle. Your operators will say: "This

sure beats riding a heavy-duty clutch all day!"

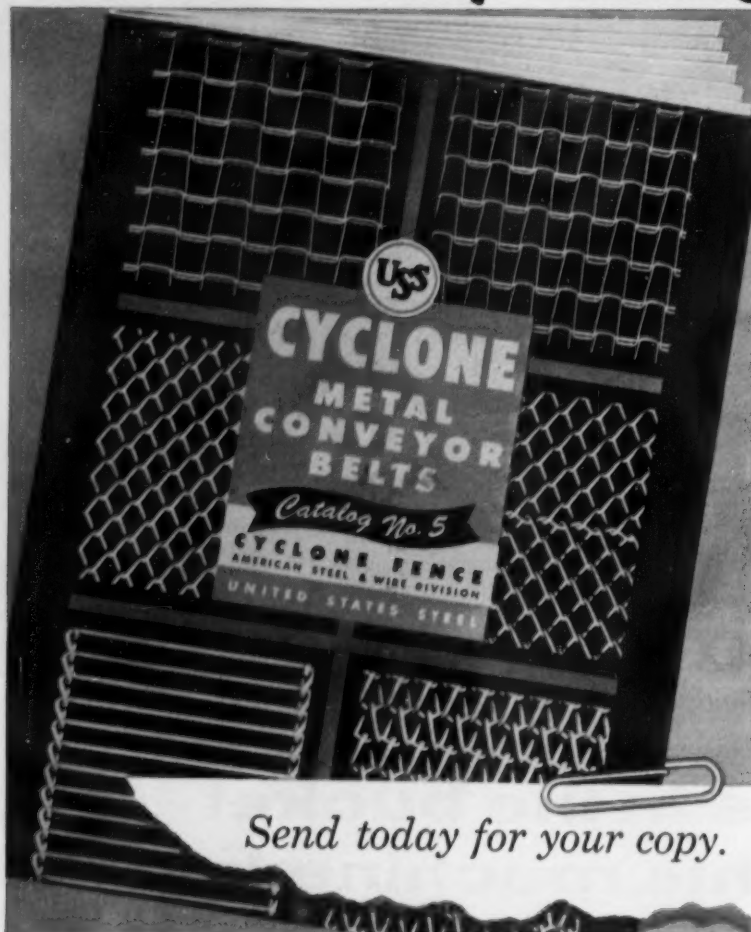
See it in action—on your own job. Write us and we'll arrange a demonstration. MICHIGANS are built to handle jobs too tough for other rubber-tired Tractor Shovels—*let us prove it*, without obligation. Write for details on the pay-as-you-go MICHIGAN Lease Plan—you can put these machines to work without laying out a penny of capital.

CLARK EQUIPMENT COMPANY
Construction Machinery Division
440 Second Street
Benton Harbor 27, Michigan
Phone WA 6-6184

**CLARK
EQUIPMENT**

*A Trademark of Clark Equipment Company

FREE! Complete Facts on metal conveyor belts!



In many operations only metal conveyor belts are practical, e.g.—where there are temperature extremes or other severe conditions, and where free circulation of liquids or air is required. Here—in this free book—is the complete, up-to-date story on metal processing belts by Cyclone—the largest line of metal belts made. Cyclone makes processing belts of various types and sizes—in carbon, alloy and stainless steels.

Catalog #5 contains information, specifications and photographs on most of them. Also included are suggestions on the proper care of Cyclone Belts, and interesting facts on belt accessories. Send the coupon for your copy.

CYCLONE FENCE DEPARTMENT
AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL
WAUKEGAN, ILLINOIS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS CYCLONE
METAL
CONVEYOR BELTS
SPIRAL WOVEN
FLAT WIRE • FLEX-GRID



UNITED STATES STEEL

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MAIL THIS COUPON

Cyclone Fence, Dept. A-45
Waukegan, Illinois

Please send me your big, illustrated
Catalog #5. No charge or obligation.

Name.....

Company.....

Address.....

City..... State.....

MEN IN THE NEWS

Continued

pany's line of rider-type trucks, prior to which time he was the New York City factory branch sales manager. Hinckley succeeds Foster W. Lamb who has resigned.

... at Raymond Corp.

George R. Brockway has been named assistant to the president, **George Raymond, Sr.** In this position he will work with Executive Vice President **George Raymond, Jr.** in developing sales personnel and policies. Brockway is well known in the material handling field, having spent the last 12 years building an international sales force for a nationally known firm. In addition to his work with Raymond, he teaches marketing management for the American Management Association.



G. R. Brockway

... at Westinghouse Air Brake Co.

Glen W. Graf has succeeded **Richard H. Koehler** as manager, sales promotion of the Le Roi Division. He was previously in the sales promotion department of the Milwaukee division.

... at Baldwin-Lima-Hamilton Corp.

Former under secretary of commerce for transportation, **Robert B. Murray, Jr.**, has been named special assistant to President **Marvin W. Smith.** During his tenure with the Government, he issued a study, known as the Murray Report, setting basic maritime policy for the United States. He will headquarter in Philadelphia.

PRODUCTION



BUDA

IS THE FORK LIFT TRUCK THAT GIVES
LONGEST TROUBLE-FREE SERVICE
— LESS DOWNTIME



**PUT YOURSELF IN
THE DRIVER'S SEAT**
with this Free facts book. 36 pages,
illustrated in color, packed with lift truck
information. Write today for your copy.

BUDA Lift Truck—toughest in the field! Buda will give you more trouble-free service than any other lift truck made. Buda Lift Trucks are still carrying more than their share of the production load long after others have been "traded in". And, you don't waste money on downtime with Buda. When something goes wrong with Buda you can count on a 22-second strip for service, a 22-minute strip for overhaul, a 30-minute clutch change. What's more . . . all parts for Buda lift trucks are 85% interchangeable. Now is the time to look into Buda Fork Lift Trucks. When you step into a Buda, you've taken the first step to less downtime, less handling cost and increased production.



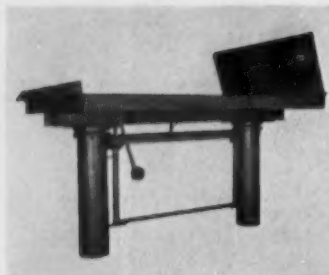
THE **BUDA** DIVISION
Allis-Chalmers Manufacturing Company
Harvey, Illinois

Circle No. 26 on Reader Service Card for more information



in Equipment

Summaries of latest information from manufacturers. For more details, use the free-mailing Reader Service Card.



Automatically Lifts Heavy Loads

Latest model Load-O-Matic manufactured by Field Engineering Company has a capacity of from 10,000 to 20,000 pounds. Two posts, instead of one, evenly distribute weight and give the extra capacity. Up and down movement is started by an automatic switch bar in the loading platform. Switch bar is tripped as vehicle moves onto platform which is automatically stopped at exact floor level by automatic leveling ramp.

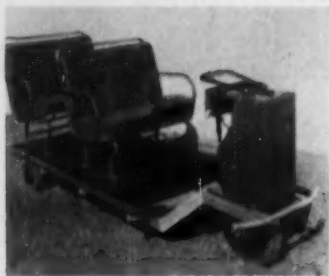
Circle No. 170 on Reader Service Card for more information



Fast Drum Handling

A new fork slide-on mounting for the Liftomatic power truck attachment has been developed by Marvel Industries, Inc. It eliminates the necessity of removing forks when handling drums with the Liftomatic. Fabricated to any size fork dimensions, the mounting can be made to accommodate from one to three units which may be permanently spaced or mounted so as to be adjustable. No fastening devices are used, since the forks simply slide into slots.

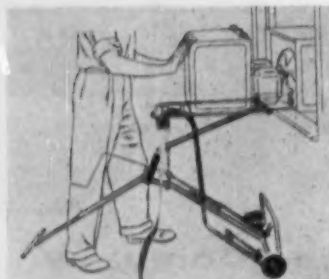
Circle No. 171 on Reader Service Card for more information



Lightweight Personnel Carrier

Recently developed by Stokvis Edera & Co., Inc. is a personnel carrying version of the Multiton Excelsior lightweight truck. Powered by a Briggs & Stratton 2½ hp motor, front wheel drive is through a three-speed gearbox. As many as four passengers and a driver may be transported at one time at speeds up to 12 mph. Seats are vinyl covered foam rubber. Servicing of the entire power unit may be accomplished in a few minutes, says the manufacturer.

Circle No. 172 on Reader Service Card for more information



Hand Truck Lifts, Lowers, Climbs Steps

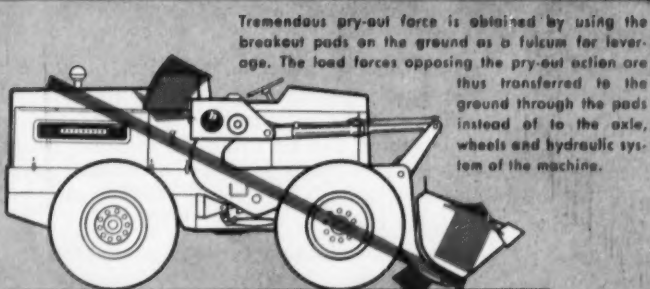
Appliance dealers will especially welcome the model A-2 appliance elevating truck, says The Fairbanks Company, because it enables one man to install and service the heaviest window air conditioner or television set. The truck will lift and lower and travel up and down stairs. Its handle can be telescoped into the frame, reducing its length from 63 to 51 inches. Savings in man hours alone will often pay for the truck within a week, claims the manufacturer.

Circle No. 173 on Reader Service Card for more information

**Only these 2 completely new
PAYLOADER® tractor-shovels
offer you all these features**



**40 Degrees BREAKOUT
at ground level with
Tremendous pry-out action**



SAFETY and STABILITY

Underslung boom-arm design keeps moving members out of operator's reach at all positions — without using safety guards and screens. Longer wheelbase and close, low, load-carry position provides maximum stability and balance.



PAYLOADER®

MANUFACTURED BY
THE FRANK G. HOUGH CO. • LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY



the NEW

Model HU 1 cu. yd.

Model HH 1½ cu. yd.

HOUGH DESIGN

HOUGH QUALITY

HOUGH PERFORMANCE

more horsepower per bucket capacity than any other wheel tractor-shovel. Either gasoline or diesel power available.

easy to operate. Fulllest operator visibility for safe, fast maneuvering; power-steering; minimum number of control levers. Foam-rubber molded seat and back cushions. Seat adjustable for operator comfort. Longer wheelbase and better balance add to riding comfort.

accessibility. Unusual accessibility for servicing and maintenance. Battery and oil reservoir are located under an easy-access cover just behind driver's seat. Sealed grease fittings. Exterior hydraulic line outlet provided for easy addition of hydraulically-operated accessories.

torque-converter drive in conjunction with 4-speed, full-reversing transmission provides precise, easy control and the widest possible range of speeds for both forward and reverse. Acts as a shock absorber for the entire power train.

other features. Closed, pressurized hydraulic system keeps dirt and air out of oil; powerful hydraulic brakes; double-acting hydraulic cylinders and chrome-plated piston rods; 12-volt electric systems on gas-powered models; forward and backup driving lights; tail lights.

The Frank G. Hough Co.
201 Riverside Ave., Libertyville, Ill.

Send me full information on the new Model HU and HH "PAYLOADER" tractor-shovels.

- ☐ Model HU-1 cu. yd.
☐ Model HH-1½ cu. yd.

Name
Title
Company
Street
City
State

Circle No. 69 on Reader Service Card for more information



Handy Small Parts Selector

Small parts may be stored and selected quickly in the Kari-All parts assorter says Peters Manufacturing Company. Described as ideal for assembly operations, service centers and plant maintenance shops, trays are like seats on a ferris wheel—always facing up. A flick of the finger brings any tray you want to the top. There's an automatic brake action to keep heavy parts from revolving to the bottom. The unit may be fastened to a wall or bench.

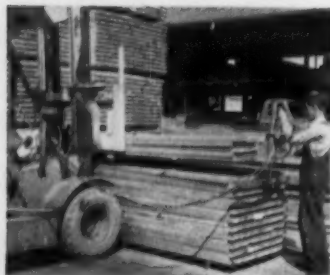
Circle No. 174 on Reader Service Card for more information



Power for Small Trucks

The Ready-Power Company has announced development of an all-new, small size gas-electric power unit for motorized walkie and small rider-type trucks. Called the model W Bantam, it combines instant starting, constant full power supply, easy accessibility and quick truck-to-truck interchangeability. A standard housing encloses engine, generator, muffler, fuel tank for all accessories. Top and side panels are easily removed for servicing.

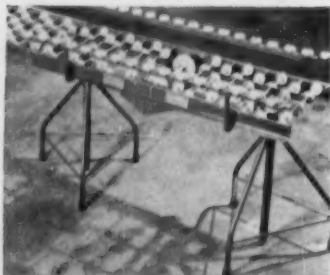
Circle No. 175 on Reader Service Card for more information



Separates Lumber Quickly

Piles of lumber can now be separated in a matter of moments through use of a hydraulically operated separator manufactured by Hydra Products, Incorporated. Called the Hydra-Wedge, the unit splits piles so that any portion can be lifted off instantly. Lightweight, it is attached to the fork truck and may be operated by the driver. Order handling in both large and small yards is said to be greatly speeded through use of the separator.

Circle No. 176 on Reader Service Card for more information



Binds Unit Loads Automatically

Sizable savings in time and money through the use of "Speedglu" conveyors are being reported by many user companies, according to Speedways Conveyors, Inc. Developed to make glued loading practical and economical for every shipper, Speedglu automatically applies two thin strips of a special glue to the bottoms of shipping cases as they come off the conveyor line, binding cartons into solid loads to withstand in transit shocks.

Circle No. 177 on Reader Service Card for more information



"Speed-Governed" Truck

Market Forge Company is offering a Ready-Power gas-electric fork truck claimed to be one of the most efficient mechanisms ever developed for handling material. It has a 12 hp water-cooled engine and a direct connected generator which starts the motor and the generator, plus "speed-governed" gas-electric drive with no clutches or transmission. Operation is controlled completely by a governor, and controls are the same as for battery-powered trucks.

Circle No. 178 on Reader Service Card for more information

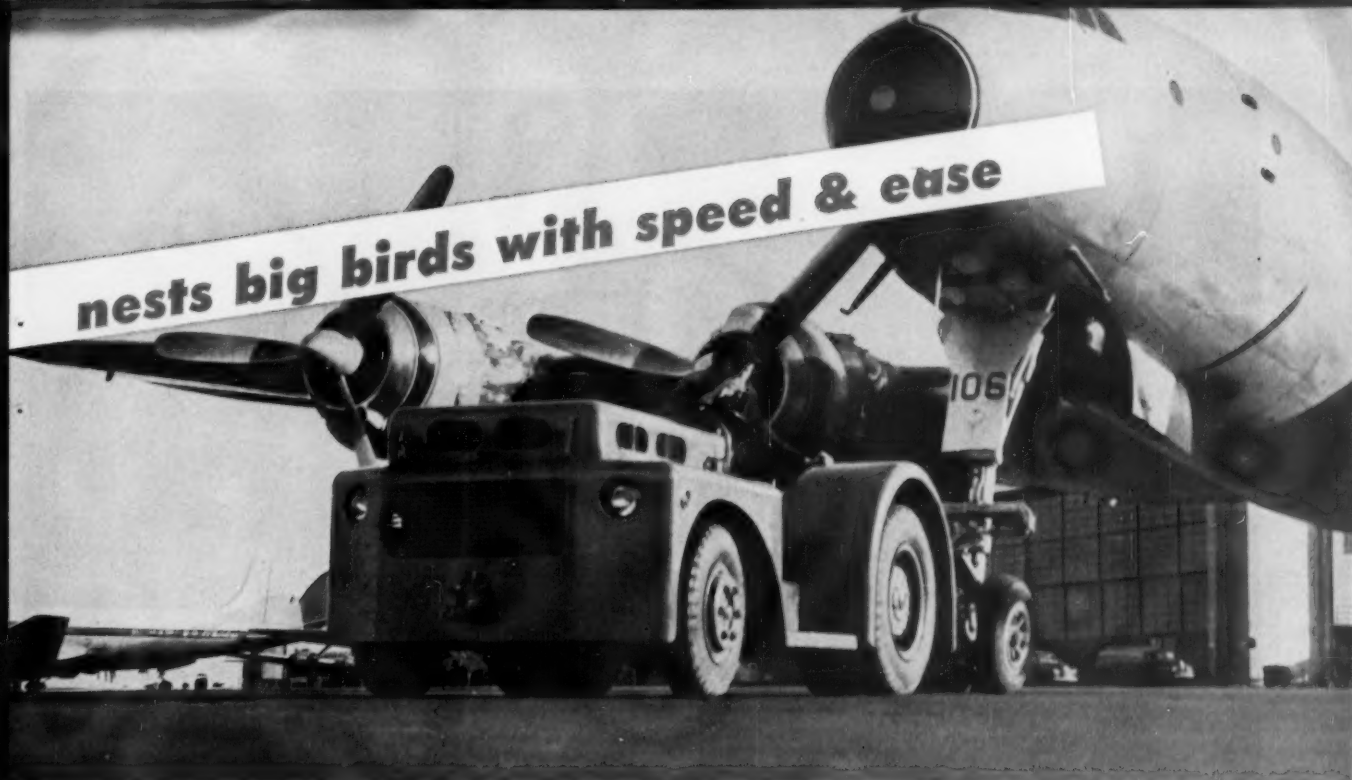


PHOTO COURTESY CLARK EQUIPMENT COMPANY, BATTLE CREEK, MICHIGAN

Clark towing tractor—with Chrysler power and fluid coupling— applies 12,000 pounds drawbar pull to big materials handling jobs

Here is materials handling—airport style. Chances are you've seen towing tractors pulling airplanes around airports all over the country without ever thinking of it as materials handling. It is though, and a mighty important type too. As planes become larger and airport space more critical, as schedules are stepped up and more flights are added, the job of keeping planes in the right places at the right times becomes an increasingly important factor.

It is only natural that the airlines employ small, powerful towing tractors to do the job. Take the Clarktor 120, shown here towing a Constellation from unloading ramp to service point. The airlines know it can handle the job quickly and efficiently. It can apply 12,000 pounds of drawbar pull, if necessary.

The Clarktor 120, like all gas-powered Clark towing tractors, is Chrysler-powered. Chrysler Ind. 32, 265 cubic inches displacement engine drives the 120. And Chrysler gýrol Fluid Coupling connects engine and transmission, protects equipment, drive components and airplane from wear and tear of sudden starts and stops.

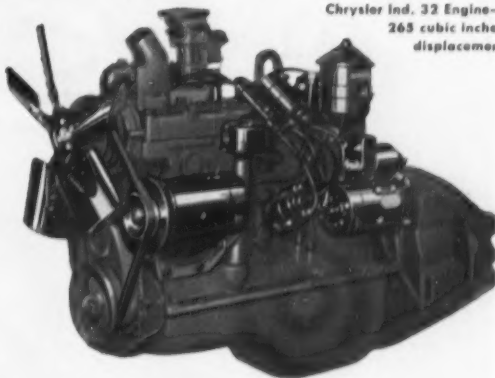
Manufacturers find it pays to power with Chrysler. Not only is it an industrial engine their customers recognize, it is also an industrial engine that assures maximum performance for their equipment, an engine that is factory-equipped to their needs. Gasoline, natural or L-P gas burning carburetors, vertical or horizontal magnetos, gýrol fluid coupling, 3, 4 or 5-speed trans-

mission, and the New Chrysler Industrial Torque Converter—these and other equipment can be factory supplied to their order.

Manufacturers know too that Chrysler Industrial Engines are not expensive. Production-line methods adapted to specialized industrial engine building provide custom-built engines at mass-production prices.

See a Chrysler Industrial Engine Dealer for your needs. Or write: **Dept. 216, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.**

Chrysler Ind. 32 Engine—
265 cubic inches
displacement



CHRYSLER *Industrial Engines*

INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION

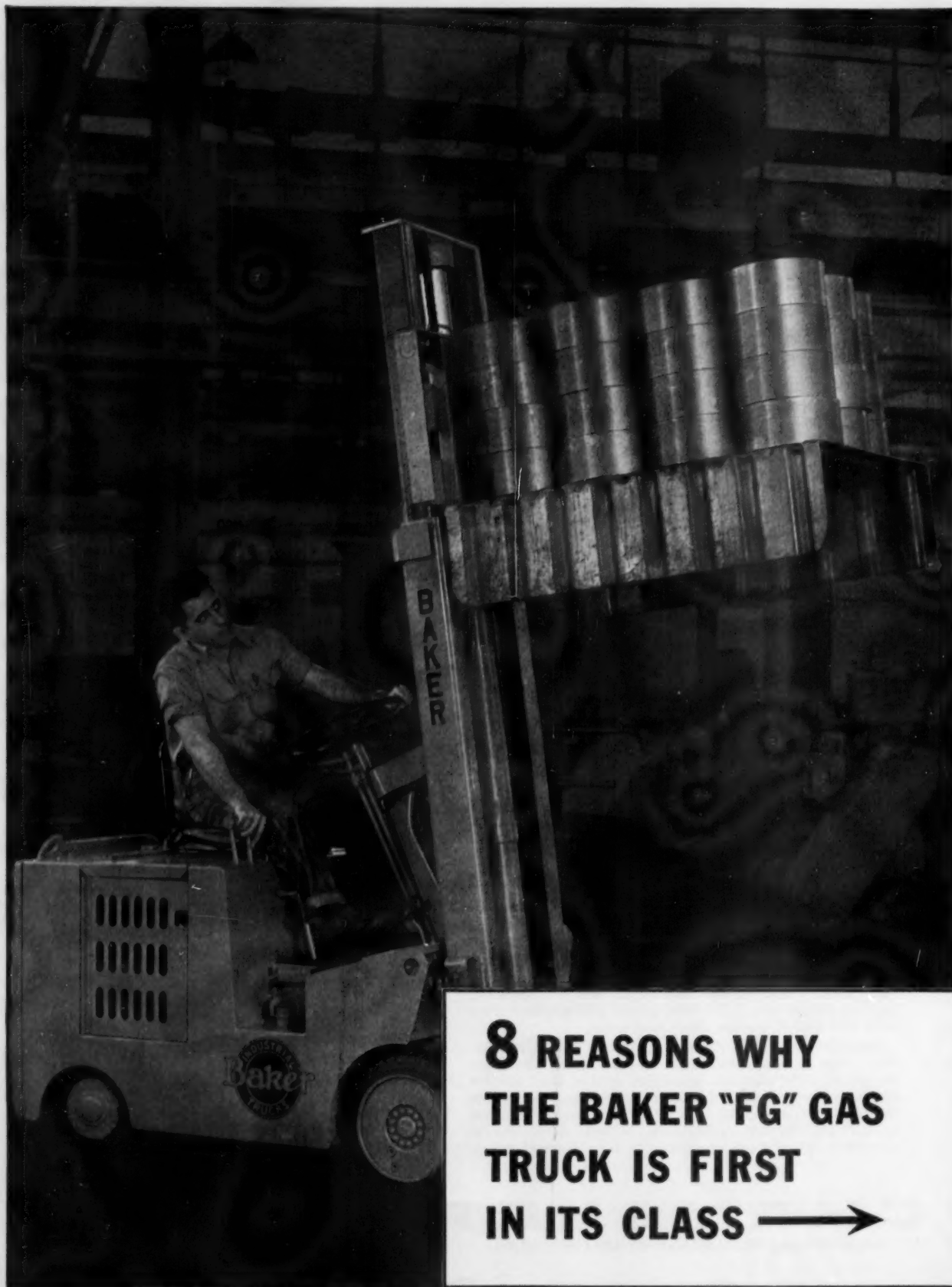
HORSEPOWER



WITH A PEDIGREE



AGRICULTURE • INDUSTRY • CONSTRUCTION • OIL FIELDS



**8 REASONS WHY
THE BAKER "FG" GAS
TRUCK IS FIRST
IN ITS CLASS —→**

Circle No. 15 on Reader Service Card for more information

Baker "FG"—a new concept in gas fork truck construction— "BALANCED DESIGN"

Every step in the over-all design of the new Baker "FG" line of gas-powered fork trucks was determined in relationship to the ultimate purpose of the machines. Every component was carefully selected, tested and modified to contribute maximum efficiency to the truck's vital functions.

The result is "BALANCED DESIGN".

For example: Exact requirements for the specific model were analyzed. Our engineers, working with a top manufacturer of heavy-duty gas engines, chose a power plant specifically for industrial trucks, power-rated to the trucks capacity. Next they selected the transmission to match the engine and geared to provide required speeds and acceleration. Then the drive axle was developed in conjunction with the largest axle builder in the country—matched to the power plant and transmission.

Lifting Mechanism was selected to meet requirements and to be coordinated with power train and

other components. The *mast* was engineered to give maximum lift within stability ratio of the truck. *Frame* was designed to withstand all stresses and strains imposed during operation, and to provide the extra stability resulting from lower center of gravity. *Accessibility* of all parts and easy maintenance were important considerations. Finally, the famous Baker wide-angle, rubber-mounted *steering axle* was modified to match the balanced-design concept.

Baker "FG" gas fork trucks are available in the following models:

Baker FG-30—3000 pounds capacity
Baker FG-40—4000 pounds capacity
Baker FG-50—5000 pounds capacity
Baker FG-60—6000 pounds capacity

Specific bulletins can be obtained by writing The Baker-Raulang Co., 1219 W. 80th St., Cleveland 2, Ohio



Baker
HANDLING EQUIPMENT

1. Lower Initial Cost

FG-40 (4000 lb.)
\$3915. Other models at proportionate savings.

2. Longer Warranty Period

Baker quality permits full 6 months' warranty.

3. Higher Lift

Mast design allows higher standard lift than ordinary trucks.

4. Lower Maintenance Costs

Designed for easier and less frequent servicing.

5. More Maneuverable

Short turning radius cuts aisle width, adds floor space.

6. Easier to Operate

Greater visibility—easy-to-work controls.

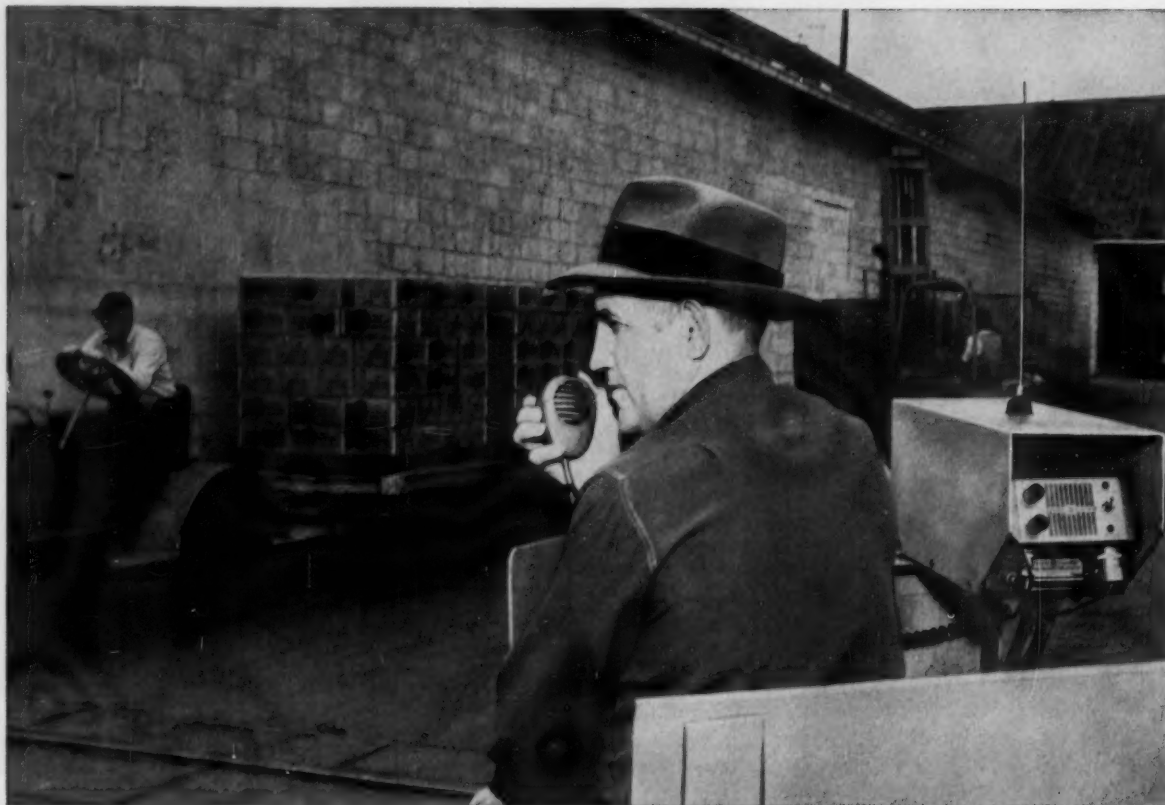
7. Greater Stability

Lower center of gravity... higher "stability factor" ratio.

8. Better Braking

Full floating, self-equalizing, self-energizing brakes.

502



BALL BROTHERS COMPANY, INC., Muncie, Ind., glass container manufacturer, achieves 80% "in-use" time for its vehicles (way above estimated national average of approximately 55%). The roving foreman uses G-E 2-way radio to coordinate activities of all trucks operating between 17 warehouses.

New high reported in material handling truck utilization

INSTALLATION of General Electric 2-way radio units on Ball Brothers' vehicles, which transfer products from warehouses to rail and truck loading docks, boosted their utilization to 80%. Because there's immediate communication between vehicles and a roving foreman, rush consignments really *move*!

THE SHIPPING, WAREHOUSING AND MATERIALS handling superintendent can contact his roving foreman *instantly, at any time*. He also can use the radio system to contact other key personnel around the 70-acre plant area, from the transmitter in his office.

G-E INDUSTRIAL 2-WAY RADIO may be operated from any of the five DC voltage systems used by materials handling vehicles. Converters are used by G.E. for installations on 24, 32 and 64 volt trucks. These converters have been specifically designed to provide optimum radio performance at all voltages between peak and minimum operating battery charge conditions. The General Electric unit is also available for operation from 117-volt AC power.

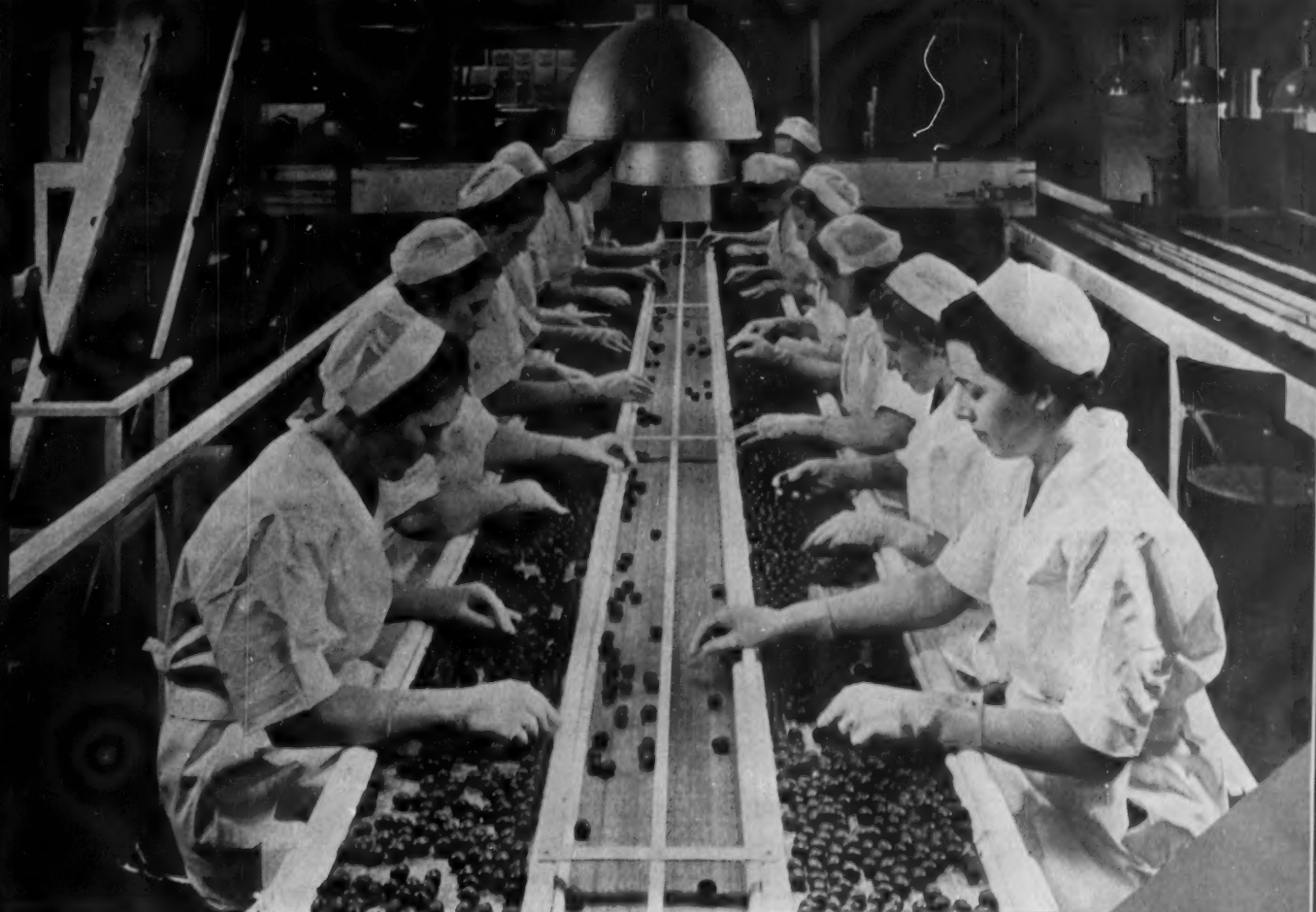


● Investigate the outstanding versatility, sturdy construction and low maintenance of G-E industrial mobile radio. Write for **FREE** booklet ECR-106A, General Electric Co., Section X3265, Communication Equipment, Electronics Park, Syracuse, N. Y.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

Circle No. 57 on Reader Service Card for more information



LINDSAY RIFE OLIVE COMPANY, LINDSAY, CALI

Thermoid Conveyor Belting cuts handling costs on many types of jobs



There's a Thermoid Conveyor Belt designed to lower handling costs in every type of plant. Each belt is best suited for the particular type of service recommended. Take food processing for example: **CANNERS (WC & PC)**—For handling vegetables, fruit and other foods. Resists acids. Imparts no taste or odor. Available in white or peach color covers. **CANNERS C**—Ideal for use where food is not in direct contact with belt. For packages, waste and refuse; **RUFFTOP**—Thousands of irregular gripper points guide smooth surfaced articles up inclines to 35°.

These belts cut costs in the food industry. But no matter what you handle Thermoid Conveyor Belting will cut your costs... stay on the job longer... reduce down time. Your Thermoid Distributor can help you select the Conveyor Belt best suited for your requirements. If you prefer, write direct for Catalog 3679.

Canners
Type WC—white
Type PC—peach

Canners
Type C—black


Rufftop

Thermoid

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah



Why freeze your plant to a fixed bulk handling system?

TOTE^{*} SYSTEM

is Economical
Flexible
Expandable

See our exhibit at Materials Handling Exposition, Chicago, May 16-20 Booth 1223

consider these facts:

1. Tote System is a *complete* bulk material handling system built around easily handled and transported aluminum bins plus automatic filling and discharging equipment.
2. Tote System is completely flexible—can be readily adapted to present and future plant layout.
3. Tote System is now being used by hundreds of manufacturers and processors to handle thousands of tons of bulk materials every week.
4. Among the many applications of Tote System are these:

- For inter-plant shipment of bulk materials.
- For in-plant storage and handling, including temporary storage of surge capacity between production and packaging.

- For accurate and automatic weighing and blending.

5. Tote System saves time and labor ... container costs ... storage costs ... losses due to weather and deterioration ... losses due to spillage, sifting and dusting ... losses due to rodents and insects ... original product quality.

Some of the materials now being handled are cement • sugar • flour salt • plastics • soy meal • ethocel powders • whiting • feed • carbon black • phosphates • detergents silicones • soluble coffee • soluble tea • phosphor powders • dacron sherbet powders • soft drink mixes cake mixes • titanium sponge

Tote Engineers will survey your plant to determine the savings you can effect—at no cost or obligation.

Meanwhile, write for illustrated literature.

^{*}Tote and Tote System Reg. U. S. Pat. Off.

TOTE SYSTEM, inc.

630 SOUTH 7th BEATRICE, NEBRASKA

Circle No. 123 on Reader Service Card for more information

HIGHLIGHTS of the month's NEWS

ONE of the impressions that remains with us after attending the Sixth National Materials Handling Exposition in Chicago last month is the number of changes in company identity which have occurred in the two years since the previous exposition. Many companies which were prominent exhibitors then have merged with firms not in material handling.

What's behind these mergers? How will they affect our industry?

First, we believe these mergers are indicative of a healthy, competitive industry. They reflect an industry which is growing more significant, more firmly established, more identifiable as an independent industry. We're not suggesting that a few large monopolistic companies swallow up all the smaller companies—to the contrary, we'd like to point out that the number of new, aggressive firms entering the field far outnumber the mergers which have taken place.

What motivates a merger? Certainly, any successful business is one which shows a good profit. It follows that an organization, to remain successful, must be assured of a substantial return on its investments.

A common type of merger is between companies which produce the same product, making it possible to take advantage of larger production, larger sales volume and increased savings in acquiring increased amounts of raw materials.

Other mergers involve firms making different products, giving one company diversification to overcome seasonal or other business volume variations. Or, a company may want to expand its operation to allied lines or products.

Whatever the reasons, they indicate the material handling industry is a progressive one.

"The Sky's The Limit"

—when you build with UNISTRUT®

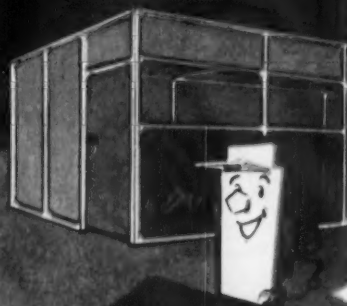


Mr. Strut shows how UNISTRUT® framing and imagination build almost anything

● Racks for every purpose!!! With UNISTRUT framing you let storage needs and space determine rack dimensions. Steel channels and fittings bolt together quickly. Racks may be changed or altered any time without material loss. Sturdy channels support tons, yet are not heavy or bulky.



● Looking for partitions you can put up fast and inexpensively? Look no more! UNISTRUT partitions bolt together from stock channels and fittings. Take any paneling material—plywood, hardboard, glass, steel, etc. Completely flexible—no limits on design, size.



● And here is shelving you can put up in a jiffy. Perfect for back-up stock storage, display, etc. Brackets and channels come in many sizes and weights. Shelf height can be regulated instantly by loosening bracket bolt. Extremely strong and durable, yet low in cost.



● Three simple steps ... that's all it takes to assemble UNISTRUT framing. No welding or drilling required. Think of the time, labor and engineering you will save with this quick-erected system.



● Fluorescent fixtures never get out of alignment when you use UNISTRUT framing. Requires fewer hanger stems, and installs on any ceiling. Sturdy, continuous channel support UL approved as a surface metal raceway. Goes up quick and easy on the job from standard parts.



UNISTRUT framing is an imaginative system made to eliminate the need and expense of special construction on all types of metal frames or supports. Its uses are innumerable, limited only by your imagination.

Your UNISTRUT Distributor is an expert on the use and application of UNISTRUT framing. He will be glad to help you in any way he can. Send the coupon for informative literature and information on our new idea-packed film "The Sky's The Limit"—now showing at your UNISTRUT Distributor. Ask about our new low prices, too!

Complete warehouse stocks in all principal cities. In Canada, Northern Electric Company.

The World's Most Flexible All-purpose Metal Framing



UNISTRUT PRODUCTS COMPANY
1015 W. Washington Blvd.
Chicago 7, Illinois

Dept. A-4

- ☐ rack catalog No. 600
- ☐ fluorescent fixture catalog No. 77-d
- ☐ mechanical and electrical catalog No. 700
- ☐ information on UNISTRUT film, "The Sky's The Limit."

Name.....

Address.....

Company.....

City..... State.....

U. S. Patent
Numbers

2327567 2380370

2329815 2405631

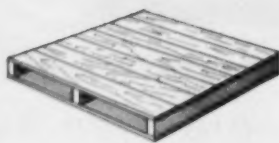
2346490 2541908

2363382 2606120

Other patents pending



Skids?



Pallets?

HANDLE 'EM BOTH



DOWN—ready
to handle skids

UP—ready to
handle pallets

with



Lightweight HAND PALLET TRUCK with SKID ADAPTER

Why buy one hand truck for skids . . . another for pallets . . . when this RAYMOND Lift Truck will handle them both!

This RAYMOND Pallet Truck is now available with a hinged superstructure for handling skid loads.

The superstructure raises out of the way when your load is on pallets . . . lowers into position when you're handling skids. It cuts hand truck costs in half for dual skid and pallet handling . . . ideal when converting from skid to pallet operation.

The RAYMOND Hydraulic Truck is lightweight . . . thanks to its aluminum alloy construction . . . yet plenty rugged to provide years of use. It's highly maneuverable, easy to pull, has foot pedals for lifting and lowering loads. Capacity: 2,000 lbs.

The RAYMOND CORPORATION

3358 Madison St., Greene, N.Y.

- ☐ Please send details on Hand Pallet Truck with Skid Adapter.
- ☐ Please send me latest RAYMOND Hydraulic Equipment Catalog.

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ STATE _____

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**WRITE FOR
DETAILS**

association and society NEWS

- Executive vice president and general sales manager of Faultless Caster Corporation, Clarence B. Noelting, was installed as president of the American Supply & Machinery Manufacturers' Association at their annual meeting in Cleveland, April 20. ASMMA is an organization of manufacturers who sell their products through industrial distributors. Noelting served the group as first vice president last year.



C. B. Noelting

- The Material Handling Institute, Inc. has new offices located at One Gateway Center, Pittsburgh, Pa. R. K. Hanson is managing director and L. W. Shea is secretary of the association.

- Recently elected president of the Folding Paper Box Association of America is Norman F. Greenway, senior vice president in charge of the folding cartons division of Robert Gair Company, Inc.

- The Falls Cities Chapter of the American Material Handling Society installed new officers for 1955-56 on April 28. A. J. Eilers of International Harvester Co. is the new president. Other officers include Vice President William S. Chynoweth, Clayton and Lambert Co.; Secretary Jerome A. Heitz, Cochran Foil Co.; Treasurer Rod D. Dew, Cardinal

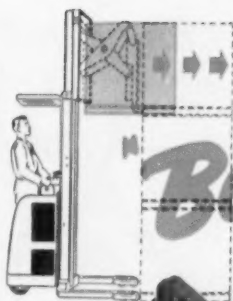
Carryor Co.; Director E. O. Klinstiver, Falls Cities Transfer & Storage Co.; Director Robert G. Hayden, General Box Co.; A. L. Murphy, chairman of the board; and Martin A. Ceder.

● "In-Plant Material Handling Training" was the subject of a speech delivered April 19 by J. F. Carle to the Detroit chapter of the American Material Handling Society. Carle is educational director of the Lincoln Extension Institute, and is national chairman of the educational committee of AMHS. His speech was illustrated with slides and included ideas on how to sell material handling projects to management.

● Paul H. Paulsen of New York recently spoke to members of the Wisconsin chapter of the Society of Industrial Packaging and Materials Handling Engineers. His subject was "How an Insurance Company Looks at Export Packaging".

● The only president the Steel Shipping Container Institute has had since its organization in 1943, Livingston Keplinger, was re-elected to another term at the group's annual meeting. More than 95 percent of the industry was represented at the three day meeting in Palm Beach.

● Modern warehousing was the subject under discussion in New York City during a meeting of the Material Handling Division of the American Society of Mechanical Engineers. The speaker was J. Donald Pill, chief industrial engineer of Colgate-Palmolive Company, Jersey City, N.J. He described the economic justification for a new warehouse and its allied equipment, the flow of goods in and out of storage, storage patterns, and the effect of warehouse operation on sales, production and inventory control.



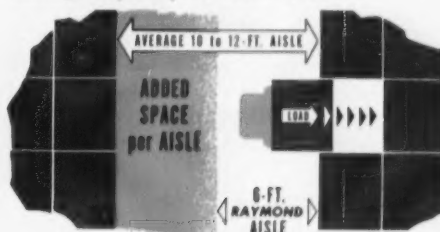
This is "Boarding House Reach"

ONLY THE

RAYMOND

Reach-Fork
HAS IT!

WHAT IT DOES The Raymond Reach-Fork enables you to install 6-ft. aisles in your warehouse right now! For the first time, there's no need for special racks or pallets. Using existing equipment, you can increase storage capacity as much as 50%.



HOW IT WORKS The Reach-Fork operates from the aisle . . . it does not straddle the bottom pallet like other narrow-aisle tiering trucks. Its forks reach right into the storage rack to pick up or deposit your load. Forks reach out a full 24" and back in seconds.

OTHER ADVANTAGES The Raymond Reach-Fork can be used on low-capacity elevators and floors due to its light weight. Ideal for loading motor truck trailers and boxcars too . . . because it stacks pallets closely, elevates 41" without increasing overall height. Equipped with new Raymond Power Unit that opens like a book for fast, easy servicing.

RAYMOND REACH-FORK
Electric Tiering Truck.
Model E2RT. Cap. 2,000 lbs.

ELECTRIC INDUSTRIAL TRUCKS ● HYDRAULIC ELEVATING EQUIPMENT

**SEND
FOR
BULLETIN**

The RAYMOND CORPORATION

3333 Madison St., Greene, N.Y.

- () Please send me latest Reach-Fork Bulletin.
() Please have a Raymond representative call.

NAME _____ TITLE _____
COMPANY _____
STREET _____
CITY _____ STATE _____

Circle No. 100 on Reader Service Card for more information



DO YOU KNOW WHY

YOUR SUBSCRIPTION TO THIS

MAGAZINE IS PAID FOR YOU?

You're Chosen Because You Qualify!

FLOW readers are carefully selected, "hand-picked" by progressive material handling equipment distributors, because they are 100% interested in material handling.

FLOW is sent *only* to qualified readers. FLOW goes to users whose specifying and/or buying responsibilities are guaranteed by local material handling equipment distributors.

Your local material handling equipment distributor, who *knows* your interest in material handling, who *knows best* your buying habits, who *knows most* what you like to read—*pays* us for your subscription to FLOW.



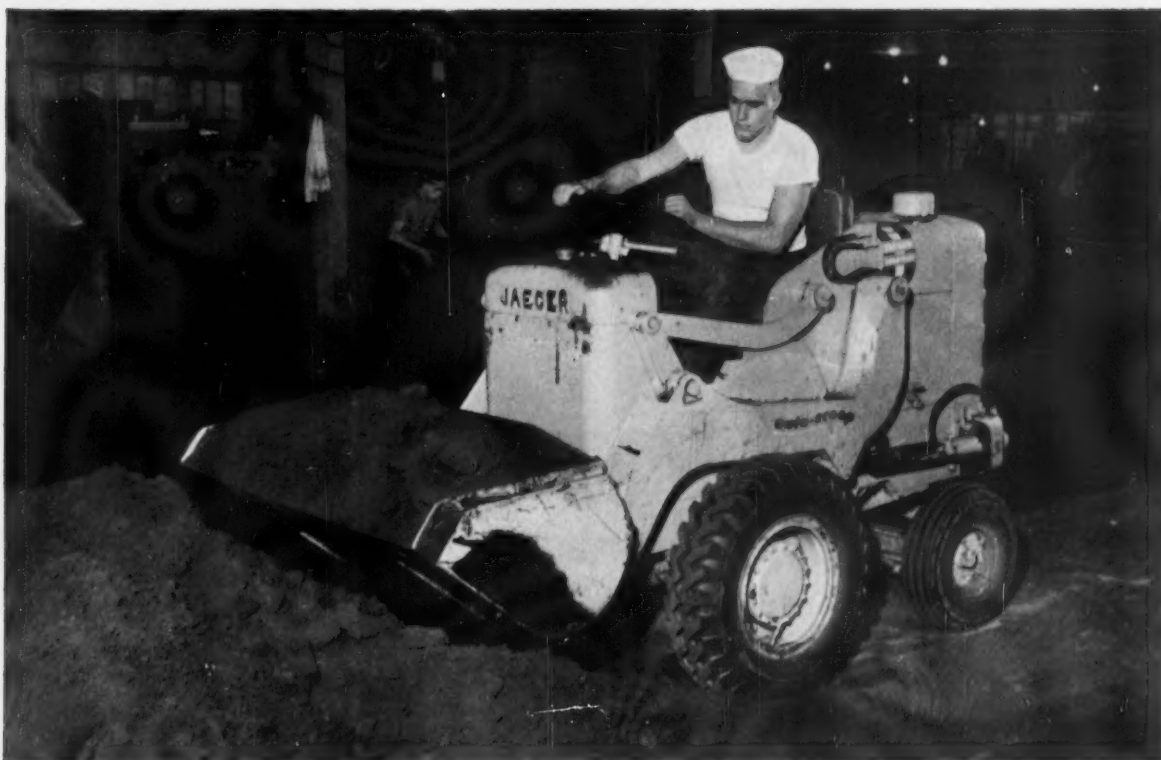
That's Franchise Circulation . . .

that's why YOU get this magazine without charge

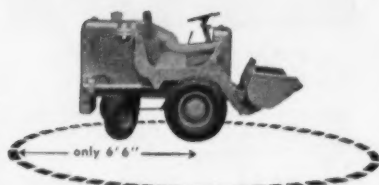
FLOW MAGAZINE

1240 ONTARIO STREET

CLEVELAND 13, OHIO



Jaeger Auto-Scoop loading molding sand for delivery to preparator. Other uses here include moving core sand, unloading box cars, handling castings.



Turns short in only 6'6" radius. Carries faster (up to 13.88 mph in reverse, 7.66 forward). Steep 45° bucket angle when in dumping position insures fast, clean discharge.



Wide bucket makes it possible to work flush against walls and into corners for clean pick-up, with resultant savings in hand labor.



Low-level bucket tilt-back permits full bucket loading and carrying as low as only 4½" above ground level.

Auto-Scoop speeds outdoor-indoor bulk handling for "Mansfield"

The quick, sure agility of the Jaeger Auto-Scoop makes fast work of delivering molding sand to preparators, moving core sand, unloading box cars, stockpiling and other jobs at Mansfield Brass & Aluminum Co., Mansfield, Ohio. They report that performance has been highly satisfactory, meeting their needs on every count, with substantial time savings.

That's because the Auto-Scoop is engineered for efficient scoop loader operation. Faster speeds (to 13.88 mph in reverse, 7.66 forward) cut maneuvering and travel time. Machine can turn in only 6½' radius with bucket in carry position, making it easy to work in close quarters. High dumping clearance (4'6" under lip, 6'8" under hinge) and longer

reach (2'7") give wide range of load placement. Handles loads to 1200 lbs.

An advantage is low-level bucket tilt-back, which enables the operator to move into material and retract the bucket independently of hoisting, at ground level. Thus, he can load without excessive traction crowding, and can actually flip the load into the bucket when picking up

small, loose stockpiles. He can also carry low, which provides low center of gravity, improves stability in travel, results in faster operation and keeps dusty materials from blowing into driver's eyes.

These are only a few of the time-saving, cost-saving advantages. For complete facts, send for Catalog L12-4 and name of nearest distributor.

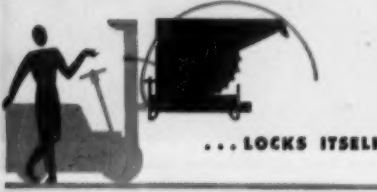
For bigger work, Jaeger offers the 1 cu. yd. Load-Plus, with torque converter, power steering and either front-wheel or 4-wheel drive.

JAEGER LOAD-PLUS *auto-scoop*

The Jaeger Machine Company, 611 Dublin Avenue, Columbus 16, Ohio

AIR COMPRESSORS • PUMPS • MIXERS • PAVING MACHINES
Distributors throughout U. S. and Canada and Principal Cities of the World

Circle No. 140 on Reader Service Card for more information



Unload 2 tons with 1 hand

It's easy with a Roura Self-Dumping Hopper. Simple, one-man operation does it with amazing speed . . . cuts cost of hand unloading by at least 50%. That's why hundreds of leading industries have found it the safe, sensible, economical way to handle wet or dry, hot or cold bulky materials.

It fits securely on any standard fork or platform lift truck . . . turns it into an efficient, semi-automatic dump truck. And, remember . . . Roura makes 'em rugged . . . extra heavy gauge welded construction . . . to withstand years of toughest treatment. They're available in sizes from $\frac{1}{2}$ to 2 cubic yards.

Let Roura help you cut costs.

ROURA

Self-Dumping
HOPPER

WANT DETAILS?

Clip this coupon . . . attach it to your letter-head . . . sign your name . . . and mail to . . .

ROURA IRON WORKS, INC.

1411 Woodland Ave., Detroit 11, Michigan

Circle No. 104 on Reader Service Card

50

Calendar of Events

May 31-June 3
Design Engineering Show
Convention Hall,
Philadelphia, Pa.

June 13-25
16th Management Course,
State University of Iowa,
Iowa City, Iowa

June 14-17
2nd Annual Industrial Engineering
Seminar,
Cornell University,
Ithaca, New York

June 19-July 2
Material Handling Training Confer-
ence,
Lake Placid, New York

July 3-6
Caster & Floor Truck Mfgs. Assoc.,
Bermuda

July 12-14
Western Plant Maintenance Show,
Pan Pacific Auditorium,
Los Angeles, California

September 6-8
Material Handling Institute,
Greenbrier Hotel,
White Sulphur Springs, West Virginia

September 6-17
Production Engineering and Auto-
mation Exposition,
Navy Pier,
Chicago, Illinois

September 6-17
Machine Tool Show,
International Amphitheatre,
Chicago, Illinois

September 20-22
10th Industrial Packaging & Material
Handling Show,
Kingsbridge Armory,
New York, New York

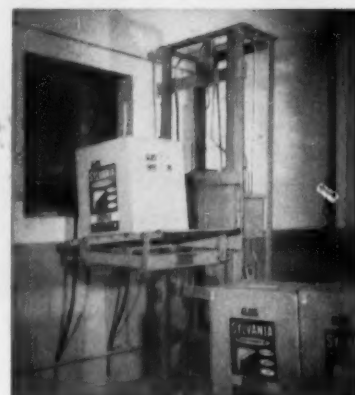
October 5-9
World Plastics Fair & Trade Exposi-
tion,
National Guard Armory,
Exposition Park,
Los Angeles, California

October 17-21
National Metal Exposition & Con-
gress,
Convention Hall,
Philadelphia, Pa.

NEW Weld-Bilt

automatic
**CONVEYOR-LIFT
ELEVATORS**

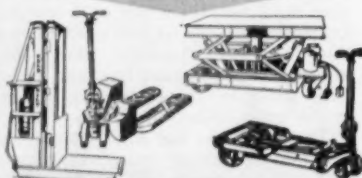
*speed your
production flow*



One of three Weld-Bilt elevators
in the automatic plant of a
leading Television Manufacturer

Here's a great time and man-saver where production flow demands multiple-level conveyor systems . . . It's a new Weld-Bilt development in AUTOMATIC Conveyor-Lift Elevators. Lifts or lowers packages or parts from one level to another, automatically selecting and lifting certain packages, passing others, if desired. Power rollers on lifting platform move load off in any required direction. All this is done without manual attention, to keep your production moving swiftly, without interruption. The Weld-Bilt Automatic Conveyor-Lift can be built to any designed capacity, any height, with controls to handle any situation or need. Write today for details — or the services of a Weld-Bilt materials handling engineer. You'll save money, time, labor. Let us prove it!

Weld-Bilt Products include:



**WEST BEND EQUIPMENT
CORPORATION**

Materials Handling Engineers

335 WATER STREET, WEST BEND, WISCONSIN

Circle No. 135 on Reader Service Card

FLOW



Here is the

Inside Story...

on new economy and efficiency in small parts handling with ...



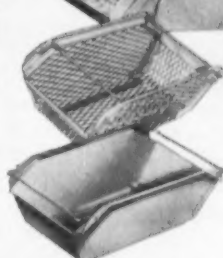
NEW CATALOG DESCRIBES INTEGRATED PRODUCT LINE AND SYSTEMS



Just off the press, this new NestTier catalog contains the answer to small parts handling problems of all types. It tells the complete story of NestTier equipment... the equipment pre-engineered to permit standardization on one type of materials handling container throughout your plant.

Fully illustrated, CATALOG DN-1000 gives a comprehensive explanation of the profitable savings and increased efficiency possible when small and medium size parts are handled the NestTier way. All NestTier equipment is described and illustrated, including newly developed units that quickly convert standard NestTier boxes and baskets into an integrated materials handling system. Specifications for all products are presented in chart form for easy reference.

The key to lower handling costs is yours without obligation... just fill in and return the coupon today for your free copy of CATALOG DN-1000.



C-238-DN

NESTIER

... First in small parts handling

The Chas. Wm. Doepke Mfg. Co., Inc.

The Chas. Wm. Doepke Mfg. Co., Inc.
8836 BLUE ASH ROAD • ROSSMOYNE, OHIO

Please send me a copy of

Name _____

Company _____

MEMO

FROM ADVERTISING DEPARTMENT

TO:

C.W. Doepke

We're repeating this ad.
Response has been
TERRIFIC! Printer says
more catalogs are due
tomorrow. Bill

NESTIER

The Chas. Wm. Doepke Mfg. Co., Inc.

8836 BLUE ASH ROAD • ROSSMOYNE, OHIO

Circle No. 45 on Reader Service Card for more information

LITERATURE

FEATURED IN THIS MONTH'S ADVERTISEMENTS

Nature . . . solved the pelican's material handling problem with a big bill, but you can solve yours without a big one, says Bond Foundry & Machine Co., when you specify its "Built-For-The-Job" casters. Circle 20 on Reader Service Card

New York . . . will be the host city for the Society of Industrial Packaging and Material Handling Engineers, September 20-22. Occasion is the association's 10th annual exposition, competition and short course. Circle 112 on Reader Service Card

Precise Control . . . of the flow of materials to and from equipment is accomplished by Elpar trucks at a large automotive forge plant. Full details are offered by The Elwell-Parker Electric Co. Circle 50 on Reader Service Card

Every Six Weeks . . . you use it the Wayne power sweeper will pay for itself, if you spend \$200 per week for plant housekeeping labor, says Wayne Manufacturing Co. If you spend \$50 per week, it will pay for itself every six months, it is claimed. Circle 133 on Reader Service Card

There's A Way . . . to cut maintenance costs drastically and acquire efficient, more profitable production capacity, according to C.I.T. Corporation. The Payd Plan folder tells how. Circle 33 on Reader Service Card

Smooth And Easy . . . is the action of the Shake-Out vibrator, says Vibro-Plus Products, Inc. Find out how the unit will save you time and money unloading covered hopper cars. Circle 131 on Reader Service Card

Money Saving Details . . . are offered by Hoisters Incorporated. The firm says you can save 50 percent on labor alone. Circle 139 on Reader Service Card

A Major Advance . . . in fast, safe, economical pallet loading with the Palletizer is presented by J. W. Greer Company. Circle 66 on Reader Service Card

A Big Slice . . . can be cut out of your operating costs, according to Service Conveyor Co. They offer details. Circle 107 on Reader Service Card

Delicate Instruments . . . are shipped daily by Delta-C&S Airlines to 16 states and 7 countries without a single breakage. The protection afforded by Hairflex, product of Armour and Company, makes this accomplishment possible, according to the manufacturer. Circle 8 on Reader Service Card

How To Reduce . . . and save manpower, fatigue, accidents, damage and costs is told by Allied Mfg. & Sales Co. Free trial demonstration is offered. Circle 2 on Reader Service Card

Smart Men . . . in material handling have learned the practical and economical lesson of solid woven cotton conveyor belting, according to Buffalo Weaving & Belting Co. Literature tells how to buy the right conveyor belt for your particular job. Circle 27 on Reader Service Card

84 Models . . . to meet your requirements are described in a new brochure published by Rowe Methods, Inc. The firm manufactures adjustable docks. Circle 105 on Reader Service Card

Revolutionary . . . is the word applied to the new Hyster Company Monomast lift truck with panoramic visibility. The manufacturer claims the new design is the greatest basic lift truck development in 25 years. Circle 70 on Reader Service Card

One Big Headache . . . was eliminated at U. S. Metals Refining Co. when 2-way radio was installed in industrial trucks covering the 185 acres. Motorola Communications & Electronics, Inc. tells how the system doubled truck output. Circle 143 on Reader Service Card

Shippers . . . are finding they can lighten their loads and lighten their costs when they ship in crates with contents wrapped in Fibreen, according to American Sisalkraft Corp. Free samples are offered. Circle 152 on Reader Service Card

The Heavier The Load . . . the tighter the grip, says Merrill Brothers of its lifting clamps. They offer information on safer and speedier lifting at less cost. Circle 86 on Reader Service Card

Material Handling . . . is easier, cheaper, with Lo-Hed hoists, claims American Engineering Co. Literature describes standard and custom hoists. Circle 5 on Reader Service Card

All Parts . . . for Buda lift trucks are 85 percent interchangeable, according to The Buda Company, Division of Allis-Chalmers Manufacturing Co. Free Facts booklet gives complete details. Circle 26 on Reader Service Card



New YALE Gas Truck speeds seat cushions to Canadian Pacific railway car at Budd Co.'s Red Lion plant in Philadelphia, Penna.

New Yale 2,000 lb. truck offers exclusive fluid coupling

SMALL, ALL-PURPOSE GAS TRUCKS ARE

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YALE offers the *only* 2,000 lb. gas truck with Fluid Coupling. It enables these short trucks to take full loads easily along narrow aisles, around tight corners... extends clutch life up to 300%... minimizes wear on tires and floors... lowers maintenance costs... makes work less fatiguing for the driver. Also available in 3,000 and 4,000 lb. capacities, cushion or pneumatic tires, with versatile attachments to handle any type of material.

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LIGHT PRODUCT CONVEYORS



Wendway is perfectly suited to the cooling of raw products, packages or containers. This "spiral" system travels the cooling products at ceiling height to conserve valuable floor space.

Cut Handling Costs!

Wendway is the modern, light product conveying system that delivers your product to any place you want it . . . smoothly and silently. Through the wall, upstairs or down, all around the plant. Wendway turns corners, goes down the assembly, packing or shipping room line, or back again, in single file or multiple tiers, runs fast or slow, or switch tracks to another part of the plant. Wendway is really versatile! And . . . Wendway saves you money in space, handling costs, convenience and time. It's trouble-free and easy to maintain. Investigate the many Wendway advantages for light product conveying, then see for yourself the many places you could benefit through Wendway's versatility.



This simple, single-tier Wendway system is used to convey fancy packaged nuts from bag loaders through a series of stapling machines and then on to boxing stations.



As fresh sliced cold meat travel by on the Wendway conveying system, the operator labels each type as they proceed to the automatic package wrapping machine.



A typical package conveyor installation, this three-tier Wendway system extends the full length of the shipping dock and carries a steady flow of packages to the waiting trucks.

WRITE TODAY

Gentlemen:—

Please send me complete information about Wendway Conveyor systems as they apply to _____

Name _____

Company _____

Street _____

City _____ Zone _____ State _____

Have a USP Conveyor Engineer contact me at once ☐



UNION STEEL PRODUCTS CO.
ALBION, MICHIGAN

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AD LITERATURE

Continued

Sealing . . . is accomplished faster, more securely, says Bostitch, Inc., with the new Boxlok top and bottom stapler. The unit staples tops and bottoms in one pass.

Circle 21 on Reader Service Card

Are You Troubled . . . with flow stoppage in bins? Gerotor May Corporation would like to tell you how to solve the problem and reduce operating expense.

Circle 58 on Reader Service Card

Idle Space . . . is reduced, says Lewis-Shepard Products, Inc., by its "aisle-matched" equipment. Free space wheel tells aisle width required and probable savings.

Circle 77 on Reader Service Card

Complete . . . tiering range in single, double or multiple sections is possible with Palmer-Shile Co. adjustable storage racks, claims this manufacturer.

Circle 97 on Reader Service Card

The Exclusive . . . creep control of Towmotor Corporation fork trucks has set a new standard of performance, according to the manufacturer. Facts are available.

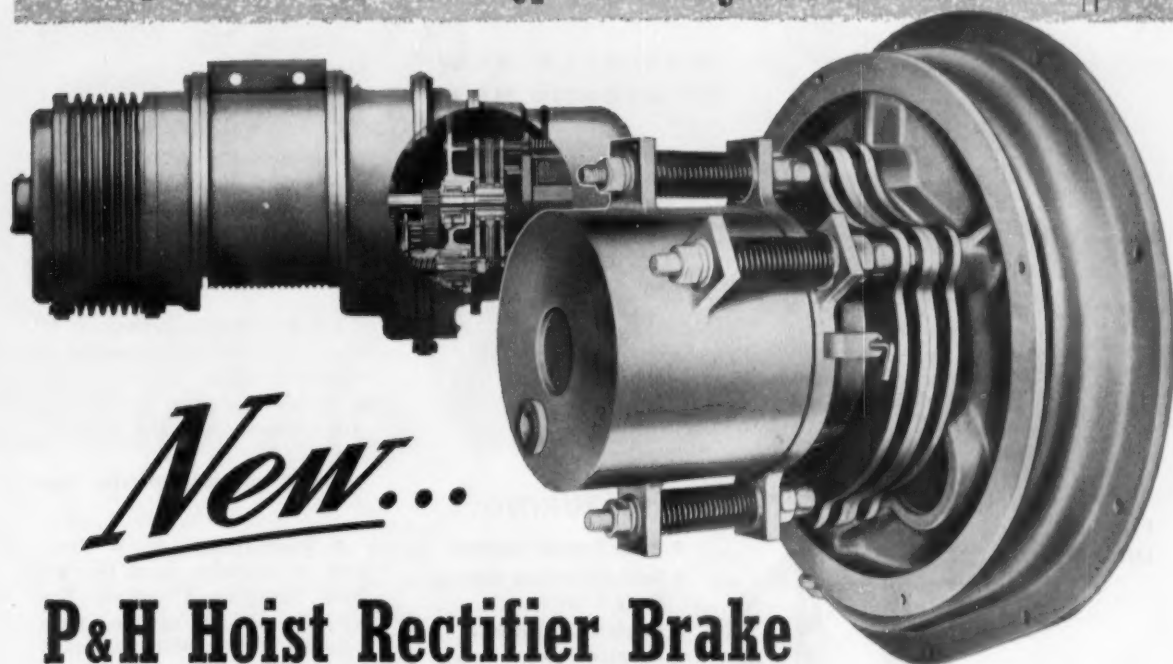
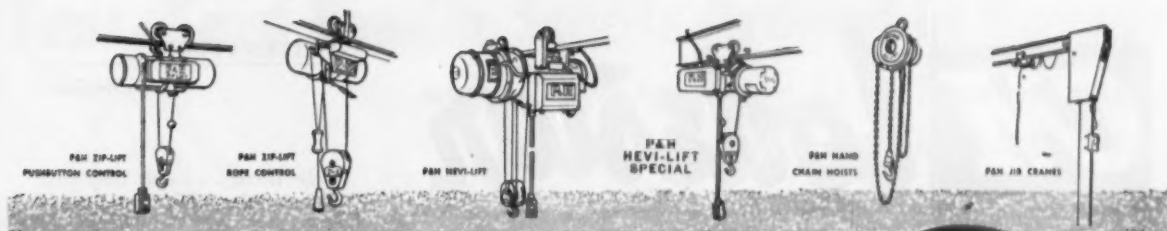
Circle 124 on Reader Service Card

Inexpensive . . . and practical are the words used by Gifford-Wood Co. to describe the Oscilvey-or, vibrating conveyor for moving loose bulk materials.

Circle 60 on Reader Service Card

Whatever . . . you ship by rail can be shipped safer and more economically by using the Stanley car banding system, according to The Stanley Works.

Circle 115 on Reader Service Card



New...

P&H Hoist Rectifier Brake

...saves money by eliminating linkage
and simplifying adjustment problems

P&H Hoist engineers built three basic improvements into this new rectifier brake: (1) They eliminated linkage — so there are less parts to suffer wear. (2) They simplified the adjustment operation so that it can be performed by a single turn of a collar on a threaded hub. (3) They reduced the armature stroke and shifted the brake contact from the magnetic core to the outer rim of the brake pot — eliminates peening the core metal.

Old-style brakes slapped back with an armature stroke of as much as $\frac{1}{2}$ " or even $\frac{3}{8}$ ". On the new P&H rectifier brake, the stroke is only .030" to .035".

Instead of linkage, four springs compress the revolving and stationary discs when the motor is deenergized.

The adjustment collar is notched to engage a spring-loaded catch which holds any given setting. The single adjustment can be made quickly and easily.

These three basic changes add up to time and money saved in maintenance. A test model of a hoist using this new brake ran for two years without one minute of maintenance time charged against it — and it's still going strong!

Sure we'll send one of our sales engineers to see you. He will give you complete information on the new P&H rectifier brake, and news of how you can adapt this feature to your present P&H equipment. Just use the handy coupon below.

Tear out and mail today!

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HARNISCHFEGER
CORPORATION

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Gentlemen: Get a man on the job. We'd like to see him.

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Company.....
Address.....
City..... Zone..... State.....

2896

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**ENTIRELY NEW
differently NEW**

FEATURING:

- Push Button Control
- Self-Adjusting Heavy Duty Brake
- Sealed-in Lifetime Lubrication
- Overload Protection
- Full Enclosed Components
- Lowest Headroom
- "CM-Alloy" Flexible Link Chain

CAPACITIES: from 1/4 to 1 ton.
Single and 3 phase. 1/4 ton model weighs only 51 pounds.

**\$149.50
and up**

Built to serve you without costly maintenance



Lodestar is the first truly "heavy duty" version of the small electric hoist. The CM Lodestar is designed to operate without costly maintenance or interruptions in your work schedules. The initial cost is practically your only cost with a Lodestar... an extremely low cost indeed!

WRITE US or call your CM distributor for literature, prices and quick delivery from stock.

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Columbus McKinnon Chain Corporation

Tonawanda, New York

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In Canada: McKinnon Columbus Chain Limited, St. Catharines, Ontario

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AD LITERATURE

Continued

Television . . . can keep your materials flowing smoothly and stop trouble before it starts, according to Dage Division of Thompson Products, Inc.
Circle 39 on Reader Service Card

Production . . . goes faster with multi-feature Work-O-Matics, claims The Union Metal Manufacturing Company.

Circle 126 on Reader Service Card

Total Savings . . . from use of a new container are expected to amount to at least \$10,000 a year at International Steel Co. General Box Company tells the complete story.

Circle 56 on Reader Service Card

A Wide Range . . . of strapping is available from Gerrard Steel Strapping Company. The strapping will tie anything from packages of sheet steel to pallets of tractor differential housings.

Circle 59 on Reader Service Card

Down . . . go tire costs when you use job-fitted industrial tires, claims Goodyear Tire & Rubber Co.

Circle 63 on Reader Service Card

Versatile . . . Buschman conveyors solve case-handling problems for greater profit, says The E. W. Buschman Company.

Circle 28 on Reader Service Card

Smaller Vehicles . . . equipped with Vickers hydraulic power steering benefit many ways, according to Vickers Incorporated. Low cost, superior performance and simplified design are among features highlighted.

Circle 145 on Reader Service Card

More Horsepower . . . per bucket capacity than any other wheel tractor-shovel is the claim made by The Frank G. Hough Co. for its two new units.

Circle 69 on Reader Service Card

Half-Yard Loader Scoots Around in Boxcar

**Compact Tractomotive TL-6 Tracto-Loader
is High Producer in Confined Areas**



Feeds Conveyor From Inside Boxcar

TL-6 Tracto-Loader moves bulk material from a boxcar to a conveyor set up just outside car door. This 33.7 hp loader has a full half-yard bucket, yet it can scoot around in this confined area, make right-angle turns without jockeying.

Here is a real production booster where work space is limited. The TL-6 is ideal for unloading boxcars, traveling through narrow aisles and doorways, making hairpin turns near columns and posts. Has short, 6½-ft turning radius . . . over-all length only 9 ft, 7 in., width 4 ft, 5 in.

You get big loads fast and you carry them low. Torque converter drive eliminates engine stalling . . . crowding is positive and smooth. Bucket has scooping action — tips back 22° at floor level. Reaches carry position, 50° tip-back, at only 3 ft above floor — means easier maneuvering, greater stability, better visibility.

As for ease of handling, operators say it's the best yet. Forward and reverse are controlled by a single, smooth-working lever — no gear shifting necessary. Reverse is twice as fast as forward — lets you get away from the pile "on the double."

Ask your Allis-Chalmers Industrial Tractor Dealer to show you the TL-6 or the two larger Tracto-Loaders in action.



For bigger, tougher jobs, see the Tractomotive TL-10 Tracto-Loader

— the industrial wheel loader that proved the soundness of Tracto-Loader design. It set new standards in loader performance with a combination of hydraulic torque converter drive and clutch-type transmission. Has 63-brake hp, ¾-cu-yd bucket. Various interchangeable attachments.

Sold and Serviced by your Allis-Chalmers Industrial Tractor Dealer

TRACTOMOTIVE

Tracto-Loaders • Tracto-Shovels • Side Booms and Hydraulic
Rippers for Allis-Chalmers Crawler Tractors • Loader and
Shoulder Maintainer for Allis-Chalmers "D" Motor Grader

TRACTOMOTIVE CORPORATION • Deerfield, Illinois

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CAN
STACK
ANYTHING
ON.. **E M I** RACKS



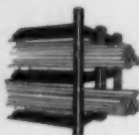
PORTABLE STOCK RACKS



PALLET RACKS



COIL, REEL
& DRUM RACKS



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DOLLY & TOWING RACKS



COLLAPSIBLE
& STACKING BOXES

*be a good
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keep your materials
well stacked!*

Equipment Manufacturing storage racks that stack are fabricated of strong, square tubular steel and are adjustable to fit any space or unit load in your plant or warehouse. Special racks designed to your specifications. Field Engineering Service on any installation. Before you decide on a new warehouse, additional storage space or the purchase of stacking equipment, write for our catalog. You save money, space and time with E. M. I. racks.

E. M. I. Pallet Racks increase efficiency in storage and handling at the Cleveland Warehouse of Standard Oil Company of Ohio.



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MATERIALS HANDLING EQUIPMENT

STACKING RACKS FOR INDUSTRY

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AD LITERATURE

Continued

New Gearing . . . in Keller air hoists gives a wider range of usefulness, claims Keller Tool Company.

Circle 75 on Reader Service Card

A Dependable . . . long-lasting ElectroLift, Inc. hoist pays for itself many times over, claims this manufacturer. The units may be equipped with trolley drive or manually operated.

Circle 49 on Reader Service Card

Proof . . . of how Gaylord Container Corporation boxes can protect your profit, as well as your product, is offered by this manufacturer.

Circle 55 on Reader Service Card

Advance Design . . . offered in Gould batteries is possible through a new type of instrument that measures distances between atoms, according to Gould-National Batteries, Inc.

Circle 65 on Reader Service Card

One Fitting . . . does everything, claims Tubular Structures Corp. of America. The fitting referred to is Tube-Strut, designed for use with racking systems.

Circle 142 on Reader Service Card

Figure It . . . any way you like, says Sterling Wheelbarrow Company, and Sterlings will still cost less per year. Facts are available.

Circle 117 on Reader Service Card

Good . . . warehouse-keepers keep materials well stacked, and Equipment Mfg. Co. claims the best way to stack is on E.M.I. racks.

Circle 51 on Reader Service Card

Easier Handling . . . and long years of service will be yours if you use jib cranes manufactured by Chicago Tramrail Corporation, says the manufacturer.

Circle 155 on Reader Service Card



CONCRETE
PIPE



TANKS



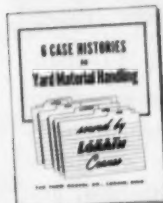
RAW STOCK &
COMPONENTS

50 WAYS A LORAIN CRANE CAN SERVE YOU!

Illustrated and listed here are only a few of the materials Lorains are handling in storage yards throughout the world. Maybe none of them apply to your plant . . . but don't they suggest a possibility for profit to you? For if you have a storage yard at all . . . or are considering outside storage to solve an expansion problem . . . the chances are you need a Lorain Crane. Because no other type of handling equipment will handle and transport as wide a variety of sizes, types and shapes of material—stack them as high or as far away—as fast—and do it at as low a cost as high-capacity, full-revolving Lorain Cranes.

A Lorain Crane is able to go 'most anywhere . . . can be equipped with a device for picking up 'most any material you can mention (see the list) . . . and when it isn't busy as a material handler, it is easily converted to a construction or excavating tool for "bonus" work around your plant.

If you have a yard, you need a Lorain. Ask your Thew-Lorain Distributor for all the facts on the complete line. Capacities 6 to 61 tons—on crawlers or rubber tires.



FREE BOOKLET—"6 Case Histories on Yard Material Handling"

Get your copy of this interesting, factual booklet. See how other plants have solved their yard material handling problems the Lorain Crane Way. Contains many action photos illustrating a wide variety of materials and yard situations, factual data on performance and results. Request your copy on your company letterhead from . . .

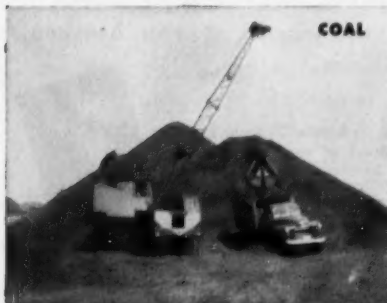
THE THEW SHOVEL CO., LORAIN, OHIO

CHECK LIST FOR YOUR YARD

What's your material handling problem? Check it! A Lorain will solve it!

ASHES	LUMBER
BARRELS	MACHINERY
BAR STEEL	ORE
BILLETS	PIG IRON
BOXES	PIPE
CABLE REELS	PLATES
CASES	POLES
CASINGS	PUNCHINGS
CASTINGS	PULPWOOD
CEMENT	RAILS
CINDERS	ROLLED STEEL SHAPES
COAL	SAND
COKE	SCRAP
COMPONENTS	STACKS
CONCRETE	SHEET STEEL
CRATES	STEEL ROD
CRUSHED STONE	STONE
DRUMS	STRIP STEEL
FITTINGS	SUGAR CANE
FOUNDRY SAND	TANKS
GRAVEL	TIES
INGOTS	TIMBERS
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LOGS	VALVES

. . . plus many more!



COAL



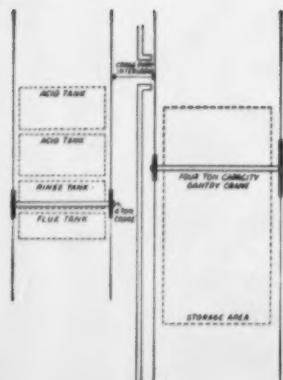
SCRAP



BILLETS

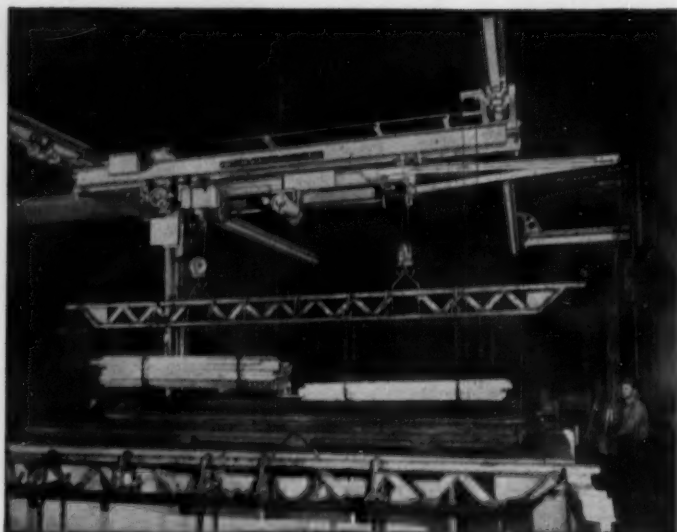
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AMERICAN MONORAIL GANTRY CRANE SYSTEM

speeds galvanizing!



Steel fence posts travel from fabrication to galvanizing over a gantry bridge which interlocks at a crossover track through doorway for passage to the MonoRail crane serving the tanks in the plating room.

All travel on the 4-ton system is motor operated and controlled by push-button station in the operator's hand.

Here is truly team-work handling that results in cost savings as well as increased tonnage through the galvanizing process. It is a typical example of American MonoRail engineering available at no obligation for the solution of your handling problems.

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B.F. Goodrich



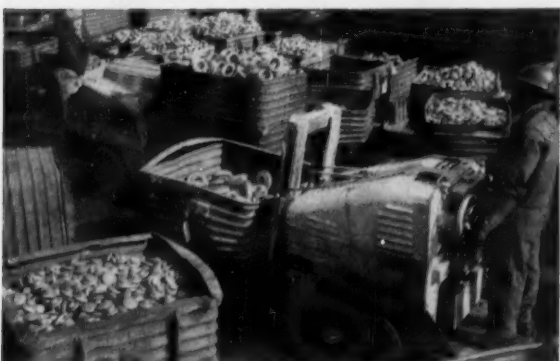
ANALYSIS boosts tire life in every department of Dana Corporation



Unloading 2 tons of clutch plate castings at Dana receiving dept.



7200 pounds of castings on their way to the production line.



Stored synchronizing rings outside the heat treating dept.



A load of Dana transmissions arrives in shipping department.

THE Dana Corporation manufactures truck and bus transmissions in its Toledo, Ohio, plant. Materials handling equipment is used to haul supplies, parts and finished transmissions all over the factory, from receiving room to shipping department. Tires roll through storage yards, over oil-soaked floors, over sharp steel shavings.

Here was a job for the B. F. Goodrich Tire and Wheel Analysis man. He studied Dana's equipment, loads and hauling surfaces. Then he recommended the right tire types, sizes, tread designs and tread compounds. Garageman Anthony Bosch says he's had tires that didn't last half as long as those

recommended by the B. F. Goodrich TW Analysis man.

How about a FREE TW Analysis for you?

Dana Corporation's case is not unusual. The B. F. Goodrich FREE Tire and Wheel Analysis is saving time and money for industrial tire users all over the country. How about *you*? Just call your local B. F. Goodrich retailer or mail the coupon. This no-obligation Analysis includes money-saving maintenance tips as well as tire recommendations. You can be sure the advice you get is unbiased, because B. F. Goodrich

makes a complete line of industrial tires. Act now! And if you manufacture materials handling equipment, there's a special TW Analysis for you.

Specify B. F. Goodrich tires when you order new equipment



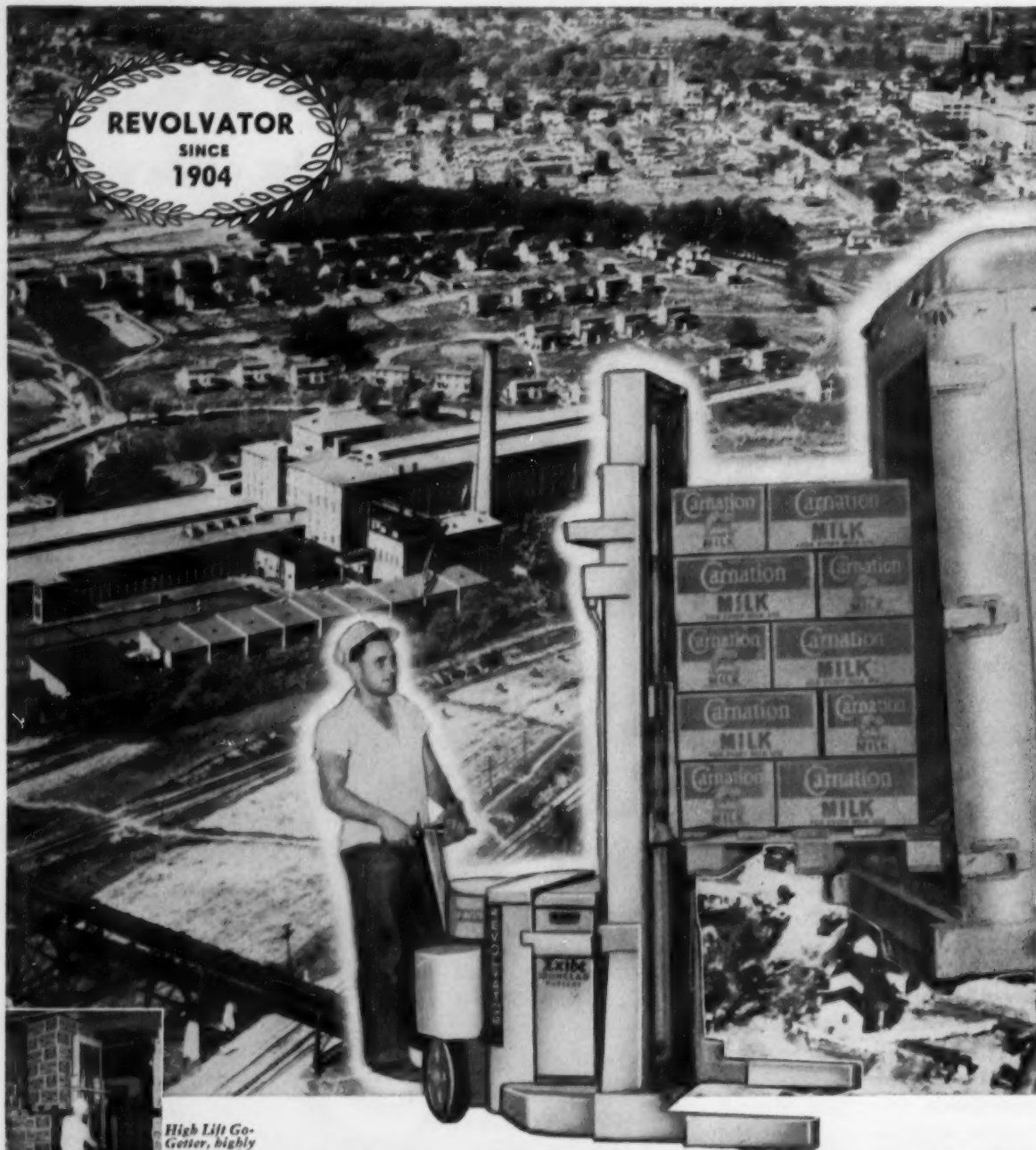
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Tire & Equipment Division
Department TW-508,
Akron 18, Ohio

Please send me:
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☐ Free copy of "Industrial Tire Guidebook"
☐ Free copy of "How to Get Extra Service out of Solid Industrial Tires"

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 Company _____
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 City _____ Zone _____ State _____

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High Lift Go-Getter, highly maneuverable, a favorite of food producers, wherever narrow aisles and high stacking is required.



The same High Lift Go-Getter engaged in transporting goods from the warehousing operation to the shipping point—a real brute for work.

REVOLVATOR GO-GETTER LIFT TRUCKS

You Benefit By Over 50 Years of Diversified Experience

Thruout Industry Revolvator Go-Getter Lift Trucks have been used to solve a great range of materials handling problems. For manufacturers of heavy machinery—where area temperatures are high and loads are maximum; for packers of frozen foods with temperatures ranging from seasonally atmospheric to far below zero, Go-Getter Lift Trucks have proved their worth. No matter how different you may feel your requirements are, there is a standardized Revolvator Go-Getter ready to perform your most specialized requirements.

The quiet, smooth, powerful operation;

the easy maneuverability; the freedom from heavy maintenance; the overall simplicity of construction of these Revolvator Go-Getters have made the name Revolvator synonymous with peak efficiency in materials handling.

Today write for full information.

REVOLVATOR CO.

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FURTHER HORIZONS IN MATERIAL HANDLING

By Frank R. Simpson,
Director of Research
& Development, The
Kuljian Corporation



Part I of a two-part article which will show the expanding scope of opportunities for the improvement of material handling.

Mr. Simpson has had over 30 years of experience in design and development work with such firms as Westinghouse, Baldwin Locomotive, De Laval Steam Turbine, and the Franklin Institute.

AFTER forty years of intermittent world wars of unprecedented size and complexity, design engineers and manufacturers are now faced with the possibility of an extended period of peace, with its economic problems.

During those hectic war years, industry worked under duress to help produce vast quantities of war materiel—in addition to greatly increased quantities of goods for civilian consumption. This was done as well as possible with tools and equipment already available.

Now, much of this equipment is worn out or obsolete. Material handling equipment, in particular, suffered greatly during this period and now needs extensive repair and/or improvement in many places.

Much of the equipment used for handling and processing materials in the past was adapted to suit immediate requirements. Now it is necessary to plan on a broader scale to meet the competition of other nations where the standard of living of their workers is not as high as that of ours. Larger salaries in the U.S.A. require that workmen produce more efficiently to make a profit for the stockholders—as well as to keep the cost of the finished article to a minimum. This requires the most efficient flow patterns and production systems; the most suitable equipment and machinery; and streamlined designs of functional simplicity for the articles being produced.

Advancements in material handling will not all come by slow, small improvements. Many will require adoption of radical changes to many phases of the handling problem. Product and handling equipment designs must be refined and improved far beyond what is now considered the optimum in each industry or field of handling. Definite trends can be observed in the design of many successful metallic products now on the market. Shapes are more functional; parts are extremely simplified; and construction is arranged to permit high speed production. Many times, the handling equipment for making these parts is found to be almost obsolete and far from efficient. Even the system of manufacturing has no definite flow-pattern. Often this is subject only to the whims of the foreman or supervisor.

An analysis of the material handling field must necessarily be broad enough to encompass many phases of interest. But it can be only brief and general here because of the limitations on engineers' reading time

(More on next page)

today. Suggestions for possible future advancements in the art of material handling are based only on the experience of the writer and represent his vision extrapolated into the immediate future.

Problems of Increasing Production

The handling of materials is probably the most primitive as well as the most basic phase of modern production. In many cases, it occupies a large portion of the time required to produce an article. This is particularly true of raw material production. In decreasing amounts, it follows for semi-finished and finished material production, until, in the latter, actual processing may require more time than handling.

Obviously, then, it is always important that material handling time be kept to a minimum. When it is necessary to increase production, one of the first phases to be tackled is reduction in handling time. This is usually very difficult on finished materials, such as machinery parts, where handling often requires a small part of the time. But greater improvements can be made in the production of raw materials because, proportionately, more time is spent in handling than in processing.

Great strides have been made in the last 20 years in bringing raw materials from all parts of the earth to

the factories and homes for refining and direct consumption by mankind. Here is, basically, an operation in which the raw materials—in the form of farm products, trees, sand, gravel, stone, coal, oil, water, iron and many other primary materials—are gathered into unit quantities of cubic yards, tons, cords and gallons and transported to processing, finishing, and consuming points. The flow path by which each of these materials reaches its final destination must be kept as short and direct as is consistent with the material and its ultimate use.

The primary means by which raw materials were originally gathered or collected was by manpower, in which man gathered the required materials, using perhaps a shovel or rake. Later, he employed a power shovel, crane, or even more elaborate means. Ultimately, this has become a self-propelled handling vehicle that can, independently, travel on the earth's surface to the source of the raw material, collect it in suitable cars or containers, and start it on rail-guided equipment to the processing or consuming point. At the end of its journey, material is dumped out and transported, by conveyors or vehicles, to storage containers, and then on through processing lines until it becomes a finished product, ready for the consumer.

Each raw material is usually converted at some point

CLASSIFICATION OF MATERIAL HANDLING PROBLEMS

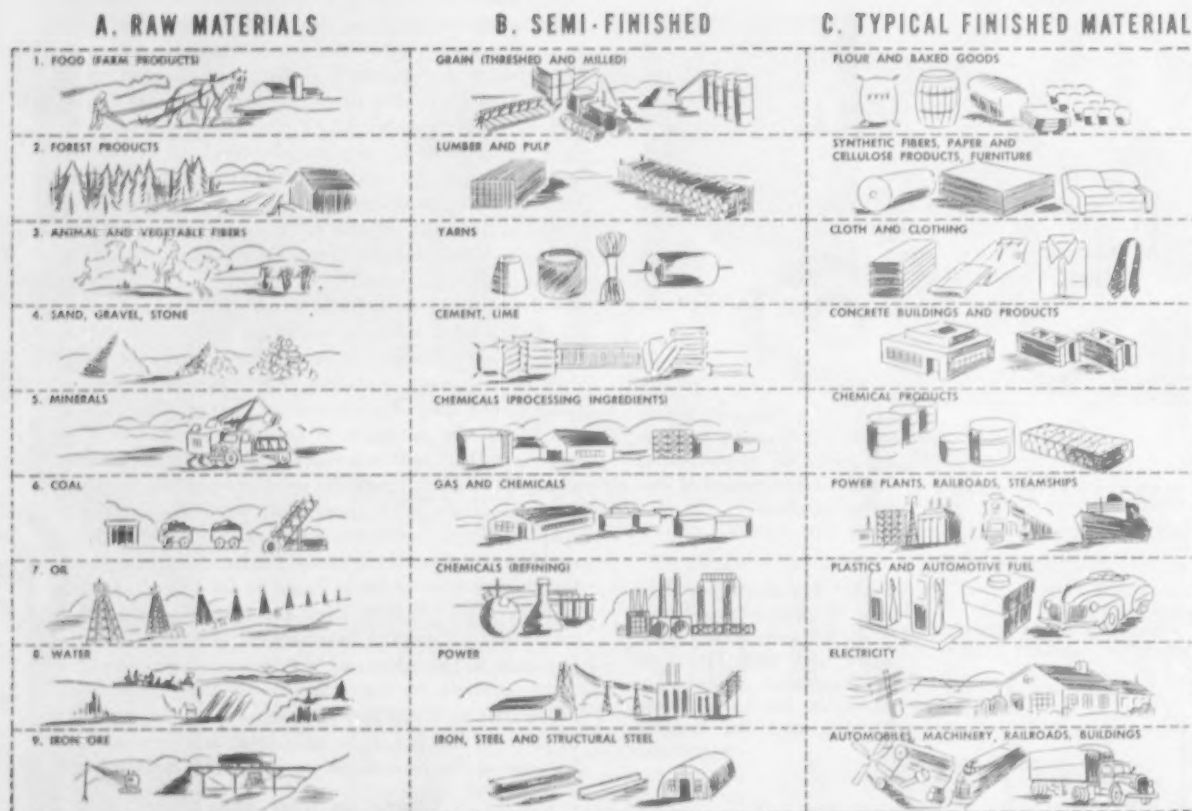


FIG. 1 MATERIAL HANDLING PROBLEMS IN SOME TYPICAL INDUSTRIES

—often at a distance from its source—into what can be termed a semi-finished material. Ultimately, a finished product is made at another distant point. This is shown schematically for several of the major, basic, raw materials. The number of operations involved in converting any one of these raw materials into a finished product often runs through several hundred stages. Many of these stages are material handling operations. It is the endless problem of the industrial engineer to keep the number of these operations to a minimum. Wherever it is possible to combine or eliminate any handling operations, production is speeded and profits increased.

Streamlining of the flow pattern for any product is nothing more than the establishment of a smooth flow pattern. Any abrupt stoppages, any time delays, or any deviation from the direct path from raw material to finished article must be corrected as nearly as possible to a straight-line process. Sometimes this requires special machinery that performs one or more operations with very little or no handling between them. The extent of these improvements depends upon the economic balance between capital investment and increase in profit. When large quantities are involved, even the smallest improvement in handling may warrant an appreciable investment. The ultimate object, of course, is to make the material flow lines as parallel and direct as possible.

Semi-Finished Material Handling

Many of the so-called semi-finished materials are usually in a form suitable for easy handling. Raw materials are often quite bulky and irregular in size, shape and weight. Finished materials are usually more uniform in shipping lots but variable between groups. Semi-finished materials are usually in smaller units that can be easily handled automatically by crushing, mixing, cleaning, cooking, treating or combining to convert from the raw form. These semi-finished materials are usually in forms of liquid, powder, granular, or small solid forms; the handling problem is simplified by the use of conveyors, pipes, chutes or automatic machinery.

This condition broadens the possibility of adopting an endless number of ingenious solutions which could greatly reduce production time and cost. Problems in handling semi-finished materials can be solved to much better advantage than can those involving raw materials simply because the resulting process can be contained in a comparatively small area. For example, chemical plants may require many phases and operations, but the complete flow path for a large capacity plant can be handled by pumps, pipes, tanks and valves, with the entire equipment confined in a small building or processing area.

Other types of semi-finished material plants require a large amount of mechanical equipment, such as in rolling mills, lumber mills, spinning plants and flour mills. Here there is usually a large amount of specialized, processing machinery that converts raw materials for making finished products.

In a general survey of material handling, it is often

a matter of personal opinion as to the group in which a material belongs as it passes from one stage to another. We believe the dividing line can be judged by determining whether a material requires additional treatment to make it suitable for consumer use. Where the semi-finished material has reached a stage suitable for finishing by another plant, it is then ready for completion.

Finished Material Handling

In this group of materials we include all those that are made from semi-finished materials and are ready for assembling into complete units—such as machines—or are ready for direct consumption.

In a broad sense, this aspect could include those phases of handling within automatic machines, such as the moving of the part through the machine itself. This is usually considered as the responsibility of the machine designer, while the automatic handling of parts between various machines in a plant is considered the function of the industrial engineer. However, the latter is finding it more and more necessary to build this handling function into the automatic machine itself so as to incorporate for greatest production, as many operations as possible into a unified structure. Unless this is done with caution, the resulting machine may become too complicated and too restricted to only one specific type of part production.

Although the mechanical or automatic handling of finished parts represents the more complicated phase of this type of problem, a large portion of the handling in this division is by mechanized equipment—such as conveyors, lift trucks, monorails, cranes, and rail-guided equipment. Here is the industrial engineer's most fertile field of opportunity for the elimination of as many manual operations as possible from the production of finished parts.

Manufacturing

The three groups mentioned above, and illustrated as "Classifications", can also be divided according to operations performed as follows:

1. Manufacturing
2. Inspection
3. Assembling
4. Testing
5. Packaging
6. Storage
7. Shipping

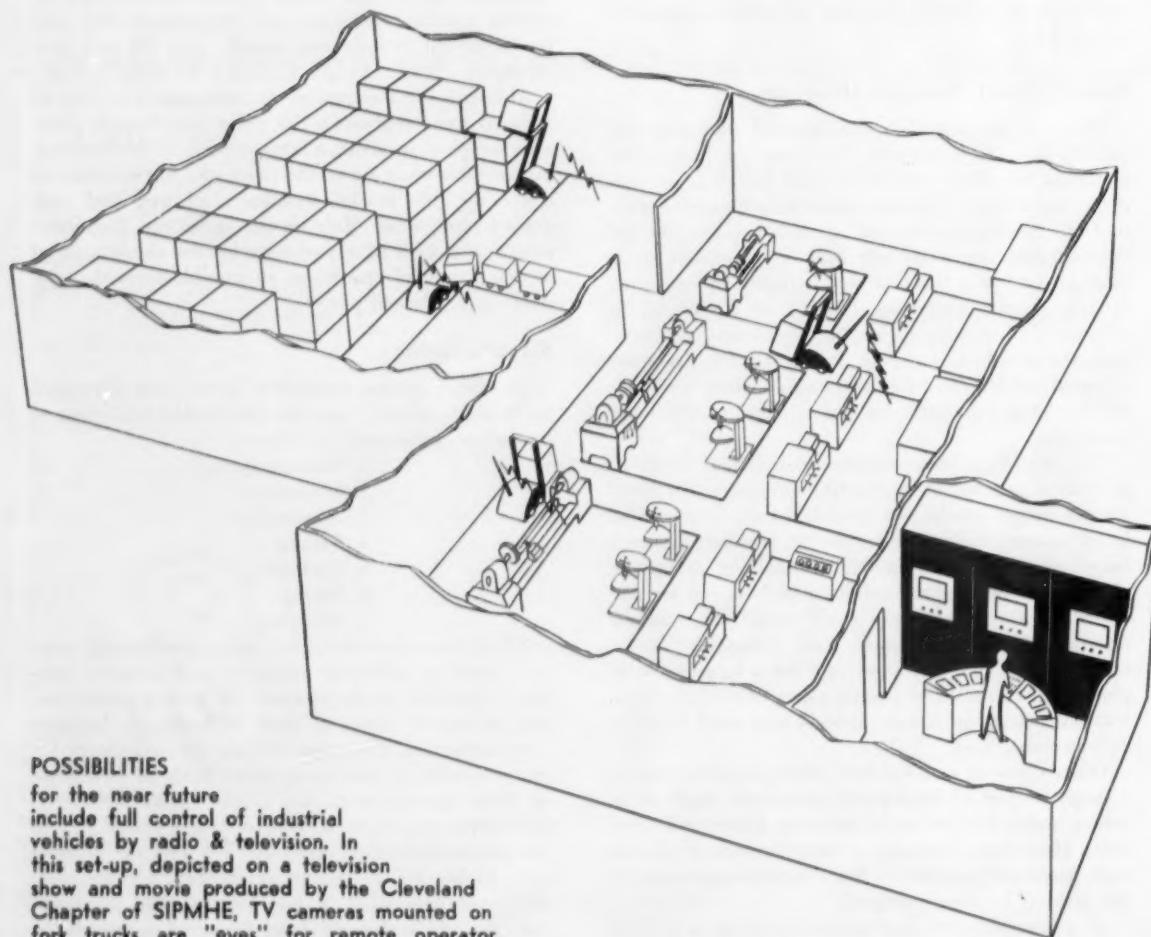
All of these operations are being mechanized more and more by industrial engineers and material handling specialists as the pressure for greater production and decreased costs—to meet competition—becomes more important. Even now it is almost compulsory for every industry in very competitive fields to mechanize all these operations to the fullest extent. Formerly, these seven operations applied in only a casual way to raw and semi-finished materials. But with the demand for a higher and more uniform quality, and the complexity of processing, it has become very important that the production of both types of materials be

rigidly controlled. These operations must, therefore, be applied to semi-finished materials and, in many instances, to raw materials.

Manufacturing itself covers such a large portion of modern industry that it has become the all-inclusive term by which we designate the actual operations used in making a product—plus the accompanying material handling by which the product is transferred from operation to operation, the inspecting, and the assembling. In this brief summary, it is impossible to describe or even enumerate all of the many operations involved in manufacturing the infinite number of products required by modern civilization. Usually we can visualize some of the more complicated work

being performed by machine tools, such as lathes, millers, drill presses, planers, shapers, punch presses, forming presses and many specialized tools. We can see mentally a succession of elaborate transfer conveyors, parts pallets, lift trucks, monorails and endless lines of workmen. But there are many industries wherein very few of these machines are used. Some are almost exclusively conveyor work, with operators and specialized machines at strategic positions. Some, as in the textile industry, are a succession of specialized machines that spin yarns and fashion them into cloth for wearing apparel. Some, as in the chemical industry, are a succession of pipes, tanks, pumps and

(Continued on page 150)

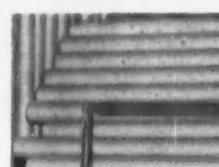
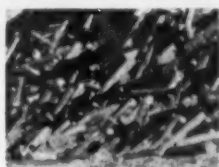
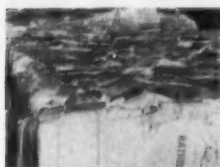


POSSIBILITIES

for the near future include full control of industrial vehicles by radio & television. In this set-up, depicted on a television show and movie produced by the Cleveland Chapter of SIPMHE, TV cameras mounted on fork trucks are "eyes" for remote operator.

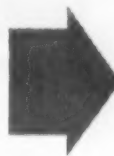
THE PROBLEM:

To successfully integrate the flow of three types of raw material from three separate sources . . .



waste paper . . . pulpwood . . . and plant waste . . . to make paper tubes.

THE SOLUTION? See following two pages



Three and/or One Handling System for Dissimilar Raw Materials

THE flow of widely different raw materials which eventually are processed into the same finished product—paper tubes and cones—as well as the finished product itself, plus waste material, was successfully integrated by Sonoco Products Company, Hartsville, South Carolina, with a handling system as individual as the material handled.

The company produces paper tubes and cones in a wide variety of types, sizes, colors and finishes. Tubes from $\frac{3}{8}$ to 36 inches in diameter are made to any specifications. For example, they may be perforated along their sides for the textile and twine trade, to insure even dyeing. Ends may be highly polished and lacquered to prevent snagging of running threads.

And, of course, their use as cores for cloth, paper, screen cloth, oil cloth, yard goods and similar material is well known. Not so well known is their use in building construction, as concrete forms up to 36 inches in diameter. They are strong enough to carry the arching loads, yet are light enough for quick and easy handling.

This brief description of the product's characteristics is indicative of the complicated production problems, most of which have been solved with highly specialized equipment designed and manufactured in the plant itself. And, to complicate the handling system, two vastly different raw materials—pulpwood

and waste paper—originate at three separate sources and are carried through processes which become more and more alike as they approach the final step in production.

First, There's Pulpwood

Pulpwood generally arrives by rail or truck and is either stockpiled in the yard or placed directly into the flume which carries it to the first conveyor. This flume, the simplest carrying device in the mill, is fed from a lake by gravity and wastes into a creek. A spur track parallels the flume for convenient unloading of rail cars. Both sides of the flume are kept clear for backing and turning trucks, and for the operation of a power crane, equipped with an orange-peel grapple, which serves the flume from the stockpiles.

The pulpwood floats into the path of dogs mounted along the cross members of a wide two-strand chain conveyor. The tail shaft is submerged in a pit which is an enlargement of the flume, and the conveyor, about 15 feet long, rises on a slope of approximately 40 degrees.

A second conveyor, installed at right angles to the first, is of the same construction and rises at an angle of about 45 degrees. Pulpwood is transferred to this second conveyor and is carried up to the de-barker.

(More on next page)

WASTE PAPER moves by fork truck and conveyor . . .



FORK TRUCK unloads baled waste paper from trucks and rail cars, moves it to storage or to processing.



SLAT CONVEYOR receives bales put to immediate use, carries them to other conveyors leading to beaters.

PULPWOOD moves by crane and conveyor . . .

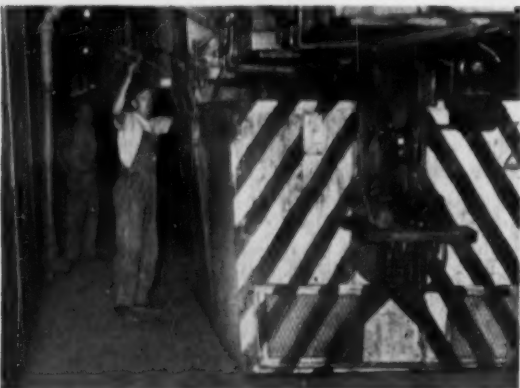


POWER CRANE with pulpwood grab serves flume from stockpiles. Logs ride flume to chain conveyor.



BELT CONVEYOR carries wood chips from a chipper in a separate building to a hopper which feeds beaters.

PLANT WASTE moves by monorail and pneumatic tube . . .



PLANT WASTE is carried directly from trimmers to beaters by pneumatic tube, or by monorail to hoppers.



MONORAIL CARS are loaded from bins, travel automatically up elevator, dump into hoppers, then return.

THREE AND/OR ONE HANDLING SYSTEM

Continued

The de-barked logs are then sent to the chipper, and the resultant chips are carried on a long inclined belt conveyor to a hopper which feeds the beaters, or caldrons, for cooking and beating pulp.

Then There's Waste Paper

All waste paper, the second of the raw materials, is handled in the company's main plant, which is constructed on three levels. At the rear of the basement floor is a large open storage bay, enclosed on three sides by concrete walls. On the next level, along one side, is a wide paved unloading area. A depressed spur track parallels the edge of this area. Bales of waste paper are received by rail and truck, and additional waste from cutters in the plant itself also is utilized.

The bales are unloaded by fork truck, and may either be stored or put to immediate use. Bales taken to storage are carried across the area to overhang the lower level. Another fork truck, on the lower level, then picks them up and transports them to storage in the bay.

Since this stock deteriorates in the hot sun and abundant rain common to this section of the country, it must be used within a reasonable time. Consequently, a first-in, first-out storage system is employed. However, because such large quantities are used, extra handling to achieve the desired storage is minimized.

For bales which are used immediately upon receipt, the beaters are located conveniently near the unloading area. Fork trucks place these bales on a wide slat conveyor which moves slowly enough to permit strap-

ping to be removed and disposed of. The paper continues to the top of the conveyor and falls over the head shaft in small sections which are then carried on other conveyors to the beaters. Here, some of the waste from the cutters in the cone department is added.

In the beaters, standard machines in the paper industry, the paper and wood fibers are cooked and beaten into a thick dark mass. The pulp is then spread, rolled, dried and tempered until it emerges as paper, .009 inch thick, in rolls of various widths ranging from 4 inches upward. These rolls of finished paper are strapped, palletized and carried by fork truck to storage or to trucks or rail cars.

And Plant Waste, Too

Plant waste paper disposal is one of the more critical phases of the operation, since a certain amount of waste is produced at every manufacturing stage. And, because of the quantities involved, an individual waste handling system is necessary.

Paper used to make tubes and cones is trimmed to 90-inch widths. A pneumatic conveyor with a bell-shaped opening above the trimming point removes trimmings by suction as soon as they are cut. They are carried by the tube to a point directly above a beater, where they are discharged.

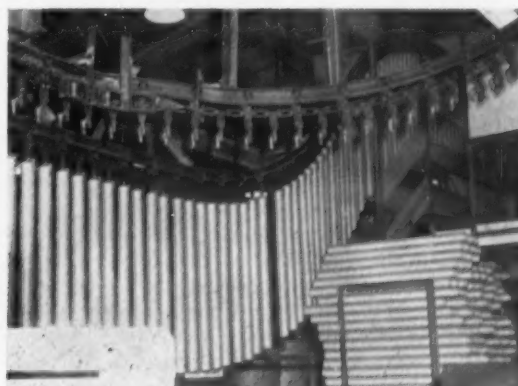
Another major source of waste is the cutting of paper into the many and varied shapes required for cones and other products. At each cutting station, a chute carries the waste down to conveyors where part

(Continued on page 94)

... and all three converge at the pulp beaters.



BEATERS process waste and pulp-wood into pulp for making paper.



PAPER TUBES are carried by overhead conveyor for further processing—the destination for all systems.

**What The Increasing
Mechanization
of Material
Handling Means
to Employees**

• Words like "automation" are receiving wide-spread, frequently vague, and all too often misunderstood and inaccurate interpretations.

As a result, workers and the public in general are inclined to be confused and apprehensive.

Recognizing this condition, a number of companies have, through their Public and Industrial Relations activities, set about

to keep their employees fully and accurately informed.

How this has been done will be featured in *FLOW*, starting with this issue and continuing over the coming months.

FLOW will be happy to make available, with the original firm's permission, quantities of reprints that other firms might like to have for their own distribution.

A U T O M A T I O N

| friend or foe?

By the Employee and Plant Community Relations
Department, General Electric Company

We are witnessing a fresh effort to fool people into fearing and resisting technological progress.

The last such effort was by the ridiculous and ill-fated "technocrats" back in the 1930's.

The attack then was against just about *any* more technological progress *anywhere* any time. That quickly proved ill-advised, as most of you will remember.

So its detractors this time reluctantly admit that technological progress is *good* for the *long* pull.

But, they claim, such progress is now suddenly liable to create vast unemployment and other injustices for the *short* pull.

This attack can succeed only if those who know the facts remain silent.

Automation is just more technological progress. It is just more of the kind of stuff which has been taking work out of work . . . creating more and better jobs . . . raising our level of living step by step with each improvement since the invention of the wheel.

Mechanization of production has so far been confined all too largely to those operations which *changed*

the shape of materials. Automation represents the broadened hope and effort which, over the last 15 years, has emphasized the attempt to extend the same sort of mechanization savings into the other and badly lagging manufacturing operations—such as *inspection, assembly, test* and *packaging*—and then to link one or more of these operations with *material handling equipment* so that continuous automatic production in one or more of the areas will result.

The ultimate functioning of automation—if it could be fully achieved—would be the step-by-step improvement of *all* manufacturing operations until automatic production moved *throughout the plant* in one, uninterrupted flow. This would be the so-called "push-button" factory.

Such a fully automatic factory has moved a little nearer the realm of possibility, from a purely *technical* standpoint, by reasons of developments during and since World War II in self-regulating equipment and in advances in material handling to link this equipment together in continuous flow.

But despite these recent developments and the spectacular machines we hear so much about currently, the completely automatic factory is still considered "blue sky"—something that we will still not have the technical know-how to bring about for some time.

Automation today is most often thought of as simply the teaming up of some manufacturing machine with the appropriate machine for material handling in a more or less limited area of production. Automation will grow as such areas are combined.

How all of the machines in a plant can be combined into a "push-button" factory is just not known today—that is, to anyone outside the comic books and the scare sheets.

Customers Govern Progress

But even if we did have the technical ability to create a push-button factory, the ultimate governor on our progress toward this goal would still be our free and unpredictable customer. In the end, the real problem will be that of finding the muscled or skilled or mental operations which the customer will let us keep standardized long enough—and, let us repeat, often enough—to liquidate the cost of the equipment required to do those manual, skilled or mental operations automatically. The progress of automation—like all other forms of technological progress—is dependent on the customer's willingness to permit his wants to be standardized long enough to make that progress pay for itself.

Ironically enough, however, the more the customer's level of living is advanced by technology the less he is willing to submit to the standardization that makes further advances possible. For as technological progress makes it possible for us to satisfy our basic needs with a smaller and smaller fraction of our total income, our wants are dictated more and more by emotional, cultural and spiritual leanings—and are therefore subject to more radical, more frequent and more unpredictable changes.

On the other hand, as progress is made from the manual area, through the area of mechanization, and on into the area of automation, the problems of quickly adapting production to changing demand multiply rapidly.

We have all witnessed in just the last generation the frantic race of the automobile industry to make standardization catch up with the shifting emotional wants of motorists. After making a fortune from standardization, a pioneer auto maker almost lost his business by assuming too long that the wants of his customers were staying as standardized as he had insisted his justly famous car be. He finally bowed to the trends of the times, shut down his plants and retooled to meet the whims of a changing market that demanded less standardization.

Thus, we find our high levels of living contradicting the very standardization which has created them. Neither customers nor competitors will permit whole groups of products, processes and calculations to stand still long enough to warrant automation on the extensive scale we already know how to accomplish. Yet there is hope in the very emphasis which is now being

put on making automatic equipment more flexible to meet fast-changing demand.

We have come to today's concept of automation in the factory through a gradual evolution over 150 years of experience in applying technology to manufacturing operations. We have had examples of automation itself in each of the areas of production over the past half-century.

Automation is, thus, an evolutionary—not a revolutionary—process.

One of the reasons for this is that we lack the know-how to create an automatic factory overnight. Only a negligible percentage of products and processes has ever arrived anywhere near the push-button factory stage. Improvements must come gradually, step-by-step, from initial hand operation toward whatever ultimate degree of mechanization proves warranted by the amount of standardization of products and processes that is feasible in each particular case.

Another of the reasons is the unpredictable customer—who will not let us dare standardize now as much as our present mechanical know-how would permit.

A third reason is a shortage of human skills. Many applications of automation must wait while the work force upgrades itself through study opportunities made available in and out of business. The development of higher skills must precede much of the development and use of the machines and controls.

A fourth reason is the fact that it is infinitely harder to make improvements in the over-all productivity rate when you start from a high base than from a low base—and in this country we are starting from the highest productivity base in the world.

When Technology Advances

Moreover, the further technology advances, the more it creates ever more varied areas of non-material wants which technology itself can never satisfy. For instance:

Technology makes it possible for Sunday broadcasts of the New York Philharmonic Symphony to reach nearly 3,000,000 homes weekly. But up to three times more "live" concerts are still given in the United States in a year than in all of the rest of the world combined—and American-born musicians outnumber foreign artists two to one.

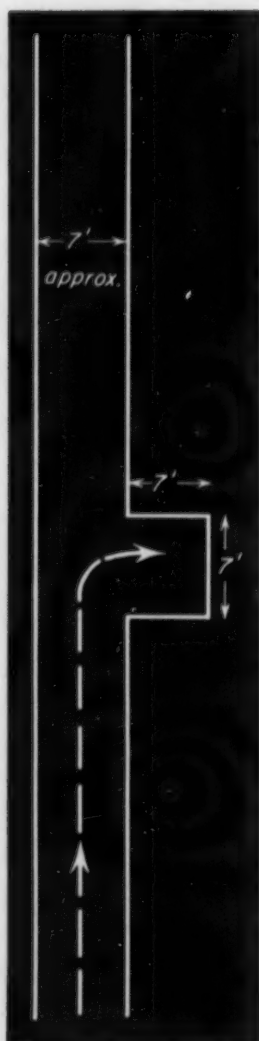
Technology makes it possible for pictures to be reproduced with high fidelity on a mass-production basis. But there were more sales of original paintings in the last decade in this country than in all of our previous history.

Technology—through motion pictures and then television—has made it possible for us to see life-like images of the odd, the strange and the curious everywhere on earth. Yet in the last 25 years, the number of our museums has increased more than four times.

Thus, we find that technology enables us to expand our levels of living into non-material areas with which technology cannot itself keep up. And as these areas grow to contribute an ever-larger portion of our satisfactions, we can look to the machine to have more

(Continued on page 154)

Training for Greater Safety...Lower Maintenance



EXCESSIVE maintenance costs on fork trucks and other mobile material handling equipment were plaguing Norton Company of Worcester, Mass. And so this manufacturer of abrasive products adopted a program of driver training and licensing.

Many of the ills the firm had to cure were of the unnecessary type—those brought on by misuse of equipment. Lift trucks had rolled off motor trucks because someone had failed to block the wheels. Loaded trucks had exceeded capacity of elevators.

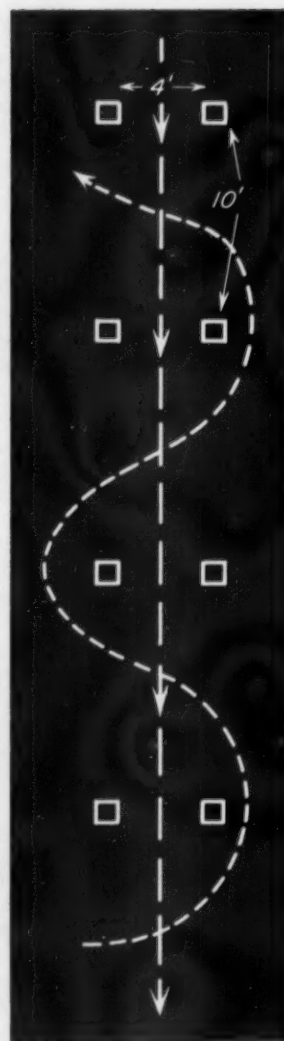
Fortunately, the number of personal injuries was negligible. Norton drivers were not “cowboys”, but many had learned to drive without adequate instruction. Analysis of the problem disclosed that many drivers, although conscientious, had had driving habits which needed correction. The study also showed that many of the major repairs were brought on by inexperienced drivers who used the equipment when they had no business using it.

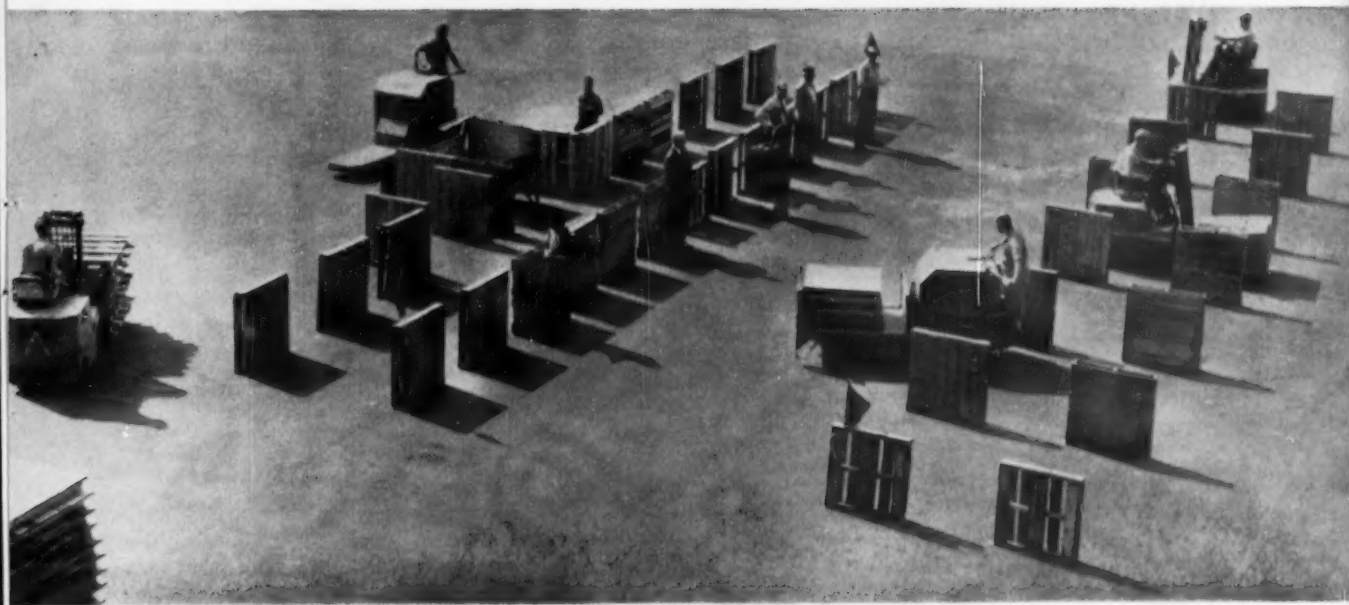
Obstacle Courses for Truck Operators

LEFT: Operator required to drive through 7 ft. aisle, place loaded pallet in space at right angles without touching sides. Then he must drive in from other end, pick up pallet and remove it without touching sides. Drivers of fork trucks are required to work through somewhat narrower aisle, handle load in tighter space.

RIGHT: Operator first required to drive through 4 ft. aisle for approximately 50 ft. without touching sides. He then must drive through serpentine course forward and backward with loaded truck.

Inspectors note bad driving habits along course, calls driver's attention to them on the spot.





OBSTACLE COURSE set up according to diagrams at bottom of previous page.

The solution to the problem involved two phases: first, a thorough training program for all drivers; and, second, a plan to insure that only properly trained drivers—identified by a license button—would be allowed to drive the equipment.

Each department using mobile equipment submitted to the factory training department a list of operators to be trained. At the completion of the course, these men were given their license buttons.

Featured in the lecture session was a training film produced by the Clark Equipment Company and titled, "Safety Saves". Other manufacturers of equipment provided booklets and samples of training programs. The instructor briefed the men on what they would see in the film and, after the showing, the class discussed the various points it had brought out. Emphasis was placed on the proper operation of the trucks to insure not only personal safety but also longer truck life with fewer repairs.

And Then the Obstacle Course

The final step in the training program was an actual driving test through an obstacle course. Probably the most spectacular part of the program, the course was laid out in an outdoor paved area. Wooden pallets outlined the simulated aisles and passageways. Each operator was required to drive through the course the type of vehicle with which he was familiar.

In one test, he drove a straight course for a distance of 50 feet between pallets placed four feet apart. Then, he drove through a serpentine course, both forward and backward. The next test was to drive a loaded truck through a simulated aisle, placing the load in a space at right angles to the aisle.

Inspectors checked each operator on several points

(More on next page)



PLATFORM TRUCK negotiates serpentine leg of course. The competition was keen and interest high.



FREIGHT CAR LOADING simulated at demonstration held in conjunction with driver training program.

DRIVER TRAINING

Continued

as he drove through the course. Driver testing was aimed to point out driver errors and bad driving habits rather than to "flunk" anyone. A local representative of a material handling equipment company was hired to conduct the tests and keep the inspection impartial and objective.

Willing Participation

Some driver opposition to the test was anticipated, but none developed. Even the old timers found that the course was a stiff test of their ability, and some discovered that they had developed certain undesirable driving habits over the years.

To forestall any adverse reaction by the men, the testing program was played up in newspaper and television news spots. This seemed to give the drivers who took the test a little added prestige among fellow workers.

At the conclusion of the testing period, a demonstration was held for representatives of other plants in the Worcester area. It opened at mid-morning, with coffee and doughnuts in a plant cafeteria adjacent to the testing area. Plant Engineer, Allan F. Hardy, Jr., and Safety Engineer, Nelson P. Ingalls spoke on various phases of the driver training program.

The demonstration itself was conducted by Sidney Horton of the Industrial Handling Equipment Company, the firm that was retained to set up and supervise the actual testing.

For purposes of the demonstration, extra equipment of the types used by Norton Company was shown and demonstrated. For example, a 15,000 pound fork lift truck used to unload lumber trucks was run through its paces. A simulated box car was set up to point out some of the features of different types of trucks for use in handling freight in the cars.

This demonstration gave the visitors valuable ideas not only on how they could improve their own driver training but also on new uses for their own material handling equipment.

All authorized drivers at Norton now wear license buttons on which their photographs appear. Supervisors in departments using trucks—also trained and with license buttons—may designate new men as trainees if additional drivers are needed. Special buttons bearing the word "trainee" are issued to them. No other people are allowed to operate the rider type material handling equipment.

In summary, these are the steps taken by Norton Company to improve its truck operations:

1. All drivers have been thoroughly trained and licensed.
2. All drivers have taken a written test and pledged to conform to all safe driving practices.
3. Each operator has been issued a handbook which summarizes the important operating procedures.

4. A twelve page written procedure, covering all phases of operation for each type of handling equipment used by the firm was prepared. A copy was given to each supervisor whose department uses power driven materials handling equipment.

A limited number of packets containing the written procedures, drawings of the obstacle course, written tests for drivers, etc. are available to companies interested in adopting a similar program. Inquiries may be directed to Norton Company through FLOW.

Information contained in the Norton Electric Truck Drivers Manual

This is the first manual ever published for electric truck drivers at Norton Company. It is not intended as an operating instruction, nor is it meant to be complete in any respect. It is intended only as an aid or a "reminder" to operators who are already authorized and qualified to run electric trucks.

You operators are the fellows closest to the problem. We will welcome any criticisms or suggestions you may have on how to make the manual a more useful guide to new operators.

It is difficult to be both brief and thorough, but we have tried to cover the main points in the four sections which follow. They are titled Safety, Fork Trucks, Platform Trucks and Maintenance.

Safety

1. **Look** where you're going.
2. **Other Trucks**—avoid them.
3. **Crowds**—avoid them—keep away from congested areas during lunch and coffee periods.
4. **Slow Down** when approaching elevator gates, inclines, tunnels, blind corners, remote-control doors, pedestrians, etc.—observe all signs and lights.
5. **Be Considerate** of others—it's safer.
6. **Passengers**—don't carry them.
7. **Wet or Greasy Hands** can be dangerous—carry a wipe rag.
8. **Dress Safely.**
9. **Jerky Stops** and starts—avoid them.
10. **Your Horn**—use it, but don't abuse it.
11. **Loads**—pick them up squarely and keep your truck behind them.
12. **Truck Capacity**—know it and keep within it.

13. **Park Safely**—aisles, platforms or doorways should be kept clear.
14. **Report**—aisles or runways that are poorly lit, cluttered with rubbish, etc.
15. **Battery Charging**—do not plug a battery on charge; disconnect batteries from chargers only when the charger has turned off.
16. **Your Truck**—allow no unauthorized personnel to operate or tamper with your truck. Report offenders to your foreman; they are a hazard to you.
17. **Collisions**—report to your foreman immediately. It's mighty satisfying to know you have kept a man from getting hurt.

Fork Trucks

1. **Tilting Device**—use it; by tilting the upright back, balance is improved.
2. **Loads**—keep about 6 inches above floor, or as low as possible, while moving.
3. **Bulky Loads**—for better vision with bulky loads, drive backward.
4. **Descending Ramps**—drive backward to avoid tipping over.
5. **Floor Load Limits**—do not exceed; if in doubt consult your supervisor.
6. **Tiering**—tier neatly to avoid dangerous and unstable stacks.
7. **Clearances**—observe them; carrying loads too high may result in the mast striking doors, pipes, air lines, etc.
8. **Brows**—be sure they are sufficiently wide, strong and secure; if pins are used, be sure they are in place.
9. **Watch Rear End Swing.**
10. **Lower Loads Slowly**—stop them gradually.
11. **Forks**—adjust to suit load width.
12. **When Parked**—place forks flat on floor.
13. **While Traveling**—hold loads stationary.
14. **Floors of Boxcars and Trucks**—should be carefully inspected; report bad floors to your supervisor.
15. **On Elevators**—shut off power and set brakes.
16. **Correct or Report** unstable loads and stacks.

Platform Trucks

1. **Brakes** should not be dragged while truck is under power.

2. **Failure of any Circuit**—step off truck; it is not necessary to disconnect the battery.
3. **When Riding Elevators**—stay off truck.
4. **Poorly Blocked Loads**—refuse to move; inform foreman in charge.
5. **Important**—under no circumstance is the direction control to be reversed in order to stop the truck; this action will damage both electrical and mechanical parts, *always* use the brakes.

Maintenance

Probably no one has as much control over the maintenance costs of an electric truck as the operator. This does not mean that all breakdowns—and the accompanying repairs—can be eliminated by an operator. However, operators, by being alert and reporting "troubles" quickly, can often save time and money by catching a minor breakdown before it becomes a major one.

Of course, every operator cannot be an expert mechanic. Furthermore, there is no set of rules that can be established for detecting all the breakdowns and operating difficulties. It is primarily a matter of good judgment on the part of the operator. Here are a few hints phrased in terms of our senses:

Listen!

Any unusual sound, or the absence of a regular sound, may be an indication of trouble. For instance, the whine of a pump may mean that the oil in the hydraulic lift is low, or that a bypass valve needs adjustment. Listen to your truck and learn its language—it can tell you a lot.

Look!

Your eyes are all-important. All operators use their eyes in carrying out the measures outlined under the headings of "Safety", "Fork Trucks" and "Platform Trucks". Not only can your eyes survey conditions around you which might lead to truck damage (obstacles in your path, extreme loads) but they can also detect such things as loose parts, bare wires, poor tires, etc. Use your eyes.

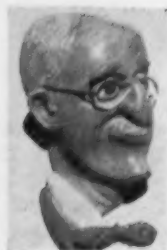
Feel!

Is there too much play in your steering wheel? Does it shimmy? Is there an unusual vibration? Do you feel heat? All these and many other conditions may reveal themselves to your touch rather than your hearing or sight. A report now, and immediate adjustment or repair, may save downtime and an elaborate overhaul later.

Smell!

Yes, even your nose can help here! The hot smells of overheated motors, burning insulation, overheated resistors and dragging brakes are quickly recognized. The troubles they indicate may be greatly aggravated by delaying a report.

Can You Afford A New Warehouse?



By William H. Meserole

Substitute your own figures in this graphical formula and you'll come up with the answer

WHETHER a firm can justify the expense of replacing an old warehouse with a new one can be conclusively calculated.

Figures to be compared include, of course, the costs, margins and profits on the books in the present plant versus costs, margins and profits which may be in a new one.

These factors are pivotal:

1. A new warehouse will mean higher occupancy costs.
2. If the new plant is wisely designed, labor costs will be optimum.

A decision as to the advisability of another facility depends upon the interplay of the elements in these factors. To plot them, we have prepared the accompanying chart and tabulation.

Typical costs, margins and profits—as recorded by an existing firm—are set forth graphically.

These may be read in dollars and percentages of sales.

Since a new warehouse program must let the firm grow as well as cut its distribution overhead, we have set against the experience figures others—which represent easy expectancies in the right kind of new plant—at both initial and capacity levels of sales volume. These, too, are readable in dollars and in percentages at various stages of expected volume expansion.

The third vertical column—initial expenses in the new plant—has no direct arithmetical relation with those of the old plant. However, the percentage of “all other expenses” which is expected to remain constant has been added to expenses of labor and occupancy in the new plant.

The seven stages of expansion

shown are at the successive points where added volume requires the hiring of an additional man in the warehouse.

The firm, in this case, has had a sales volume of just under \$3,000,000 a year. These were 1954 figures. The company employed 14 warehousemen, averaging \$200,000 in shipments processed per man per year. Low production, indeed—and traceable to the inadequacies of the old multi-story warehouse the firm has occupied for eons!

Then what is good production?

Judging by the collective experience of a great number of firms in the distribution end of the food business, we can say:

Production Per Man-Year	Rating
\$200,000	Very low—unbearable
\$400,000	Fair—minimum acceptable
\$500,000	Good
\$600,000	Admirable to Excellent

Counting, as we do, those warehousemen engaged in touch-labor that moves goods forward to dealers—and excluding supervisors and maintenance men—there is no reason why the above firm should not reach a production of \$400,000 per man-year, the minimum acceptable rate. That is, except for the limitations of structure and management.

That \$400,000 figure was used

(Continued on page 96)

Tabulation Showing Behavior Of Fixed And Variable Expenses In Old And New Warehouses

Factors	OLD WAREHOUSE		NEW WAREHOUSE			
	Volume \$	%	Initial Volume	Volume %	Capacity Volume	%
Sales	2,817,000	100.0	2,817,000	100.0	5,634,000	100.0
Cost of sales	2,588,823	91.9	2,588,823	91.9	5,177,646	91.9
Gross Margin	228,117	8.1	228,177	8.1	456,354	8.1
Expenses	197,190	7.13	183,105	6.13	343,614	6.23
Labor (Variable)	56,340	2.0	28,170	1.0	56,340	1.0
Occupancy (fixed)	8,451	0.3	22,536	0.3	22,536	0.4
All other (variable)	132,399	4.83	132,399	4.83	264,798	4.83
Net Profit	28,170	1.0	45,072	1.6	112,680	2.0

IDEAS **COST CUTTING**

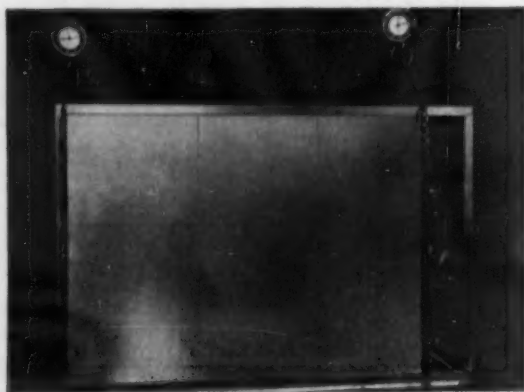
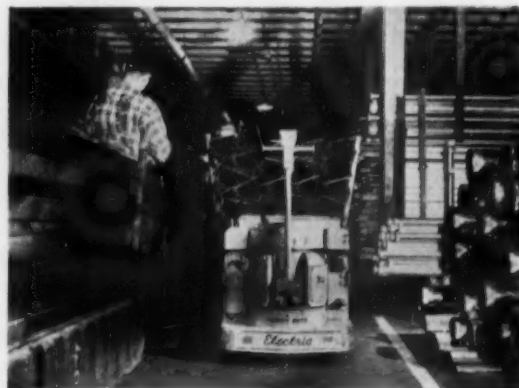


TRIM PLANT TRIMS MAINTENANCE

Use of Koroseal conveyor belting in a spray booth at the trim plant of Ford Motor Company, Detroit, has reduced overall maintenance operations as much as 30 percent. The belt carries trim panels through the booth where they are sprayed with a rubber dispersion latex to bind the parts together. The build-up of rubber latex on belting previously used was so rapid that it was necessary to shut down the unit for 35 minutes every four hours in order that muslin protective belt sleeves could be installed. The smooth, non-porous surface of the Koroseal conveyor belts permits rubber latex to be easily peeled off. Now, at the end of each 8-hour shift, excess latex is merely stripped off.

20 PERCENT MORE STORAGE

An acute storage problem was solved by a Milwaukee metal fabricating firm faced with an unusual shape and size product and no available outside storage space. Inland Steel Products Company had to accomplish all savings on the warehouse floor area, since finished products are hauled and stored on eight-foot skids which cannot be stacked to make use of cubic storage space. The solution was found in use of three operator-led platform trucks with 96-inch long platforms. The high maneuverability of the trucks made possible a one-foot reduction in aisles in the 207,000 square foot warehouse, resulting in an additional 20 percent storage space.



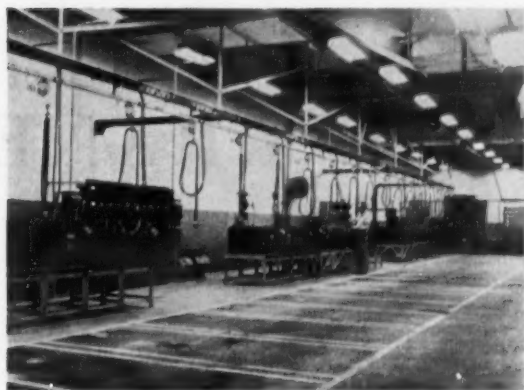
ON-THE-SPOT WEIGHING

Weighing large ice builder tanks before shipment is no problem for King Zeero Company of Chicago. The company has devised a novel arrangement of two 10,000 pound capacity scales. By merely using two hoists and chain slings, with a weight indicator positioned in series between each sling and hoist, the weight of each tank is instantly given on the respective dials and the sum of each provides the total. This arrangement enables workers to quickly determine weights for bill of lading purposes or for costing out material, and the necessity for trucking tanks to large stationary scales has been eliminated.

IDEAS COST CUTTING

AMERICAN EQUIPMENT CUTS COSTS IN CUBA

Air Compressors and other heavy equipment are being tiered by a Cuban warehouse company as easily as light packages, according to company officials. Casa Rex-Tone, S.A. of Havana recently installed a new handling system which incorporates the use of an electric straddle type stacker, hydraulic lift truck and pallet trucks. Efficient use of the equipment permits optimum use of warehouse space, gives maximum maneuverability, and makes warehousing of the largest type crated industrial equipment easy. The battery powered stacker even travels out-of-doors, lifting heavy loads into trucks for customer delivery. Handling time is said to have been considerably reduced.



BATTERY HANDLING REDUCED

Battery handling at the Allison Division of General Motors Corporation has been reduced 50 percent by a system of rollers and overhead charging leads. Now one man, instead of the two previously required, can handle 19 charging stations. One shift operation batteries are charged in the trucks. When a battery must be changed—for two shift operation, cleaning, repairs or equalizing charge—a portable table with hydraulic lift is used. Rollers are employed in the truck's battery compartment, on the transfer table and on the charging racks. This system eliminates worker strain and speeds up transfer. Spring actuated cable reels supported from the ceiling add to the convenience and orderliness of the arrangement.

HANDY HANDLE HANDLING

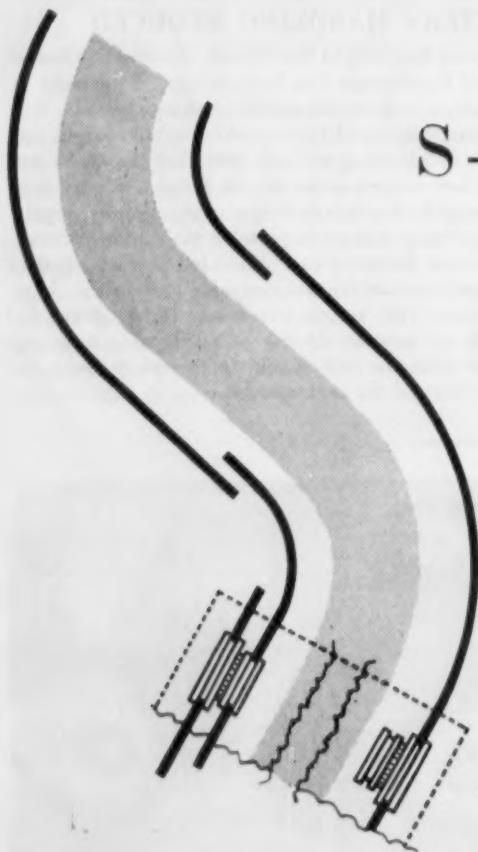
Bruner Ivory Handle Company, Hope, Arkansas, manufactures 500 types of hickory handles and 60 types of ash handles. The firm formerly charged all kilns virtually by hand. Push carts were the only means of transporting raw materials and finished handles. When officials decided to modernize operations, gasoline fork trucks and a rider-type gas platform truck were purchased. By teaming the equipment, handling has been improved and operations speeded up all around. One fork truck can pick up a load of 500 blanks from the graders and make a round trip to the yard and back in less than 10 minutes, while raw materials are handled by the platform truck.

Before



After





S-CURVE CRANE

SIDE-STEPPING obstructions with an overhead bridge crane is a neat trick which engineers themselves generally side-step—since one of the inherent characteristics of these cranes is to service unobstructed areas. Not so with engineers of Lehigh Structural Steel Company, Allentown, Pa.

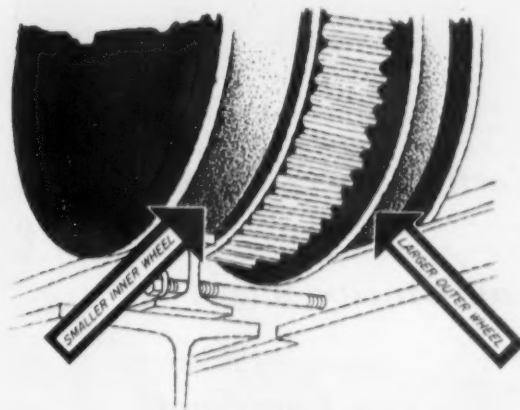
Consequently, the company now has what is reported to be the only S-curve crane runway in the country.

Why The S-Curve?

It all began when Lehigh's production demands outgrew its work and storage facilities, necessitating expansion of a fabricating shop. In all, an additional 100 feet of shop building was needed, plus 450 more feet for outdoor storage space. Because of the shop's location in relation to other buildings, and because of the characteristics of the grounds themselves, expansion was possible in only one direction.

That one direction happened to lead under a high-

UNDER THE BRIDGE AND AROUND THE PIERS goes an overhead bridge crane at Lehigh Structural Steel Company. Said to be the only S-curve runway in the country, it made the plant's expansion program work.



RUNWAY

way bridge. The addition to the fabricating shop was no problem, but a straight-line extension of the existing crane runway for the required yard storage was directly in line with one of the bridge piers.

Since removal of the pier was impossible, Lehigh engineers decided the simplest thing to do with this immovable obstacle was to go around it. Curving the runway rails was easy, although, after a short straight run they had to be curved in the opposite direction to avoid another pier and a road. However, operating a bridge crane on the curved runway was another matter. It may be compared to making a turn with an automobile which has no differential—the resultant stresses, strains and friction makes such operation highly impractical.

So, a unique "differential" was conceived by Shepard-Niles Crane & Hoist Corporation, which designed and constructed two special cranes to successfully negotiate the curves—as well as straight runs.

(Continued on page 88)

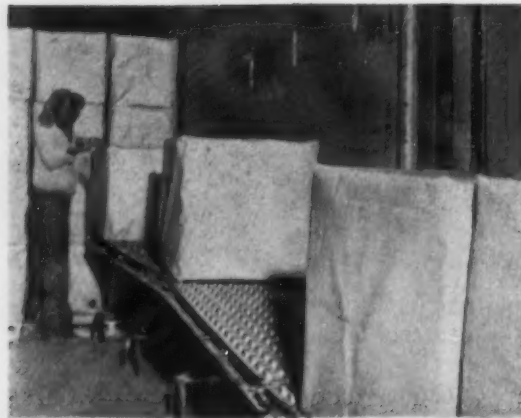


DUAL WHEELS and transfer points make it possible for the crane to travel the S-curve runway. Outer wheels are larger than inner wheels, so that on curves, the wheels which make the smaller radius transfer to another track in line with the smaller, inner wheels to compensate for the shorter distance traveled.

Vertical Tray Elevator

and Gravity Wheel

Conveyors Coordinate



1. EMPTY COFFEE CANS arrive by truck, unloaded by wheel conveyor extended into truck body.

Continuous Receiving System

THE PROBLEM: To maintain a steady flow of empty coffee cans from the receiving dock to the third floor packing room at the Folger Coffee Company, Kansas City, Missouri.

The company's antiquated elevator had become slow and unreliable, causing breakdowns which tore up the paper carriers, spoiled cans, required emergency maintenance and frequently delayed production.

THE SOLUTION: Installation of a new vertical lift tray elevator, combined with gravity wheel conveyors, to link receiving to packaging and coordinate the flow of empty cans into storage and production.

One man at the receiving dock now unloads all the cans required to operate this plant by using a portable skate wheel conveyor which extends back into the trucks being unloaded. Incoming cans are transferred from trucks at either of two dock stations, across the receiving dock and into the tray elevator. A unique principle of sprocket and chain design used in the

new elevator has completely eliminated damage to coffee cans and paper carriers, as well as down time.

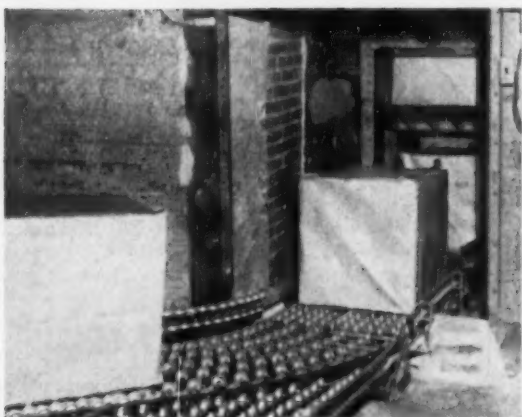
From the dock, carriers are lifted by the tray elevator to the fourth floor and discharged automatically onto a roller conveyor system which transfers carriers across the room into storage or into production.

Serves Five Stations

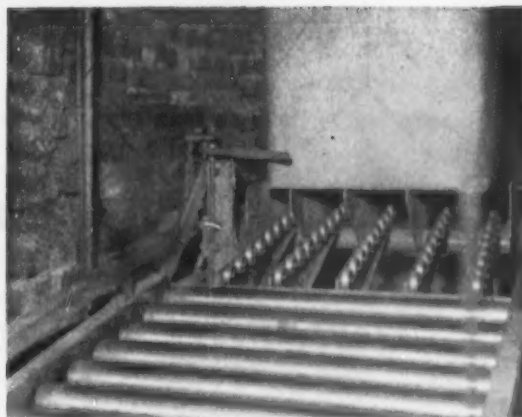
One man on the fourth floor directs the flow of empty ty cans required for immediate use and removes the surplus into storage. Five unloading stations, one for two-pound can and four for one-pound cans, are served by this flexible conveyor system.

Empty cans are unloaded from the paper carriers on the fourth floor, and are individually fed by cable conveyor to the third floor packing department. Surplus shipments of cans are stored in the carriers until needed, along the conveyors leading to the unloading stations. When incoming shipments fall below the rate of use, these stored cans are available to keep the packing department operating.

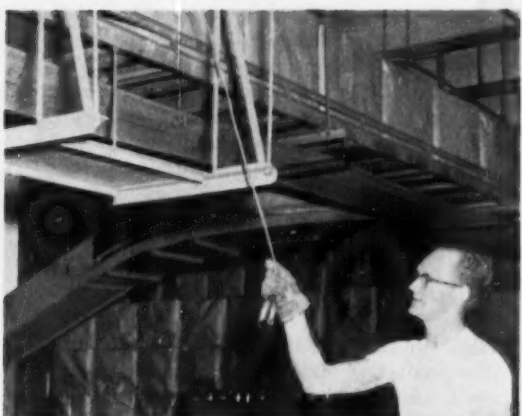
Photos courtesy Counsel Machine Company.



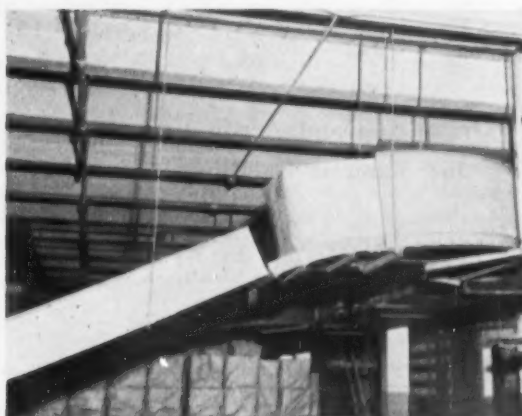
2. GRAVITY MOVES CANS into tray elevator automatically from either of the two dock stations.



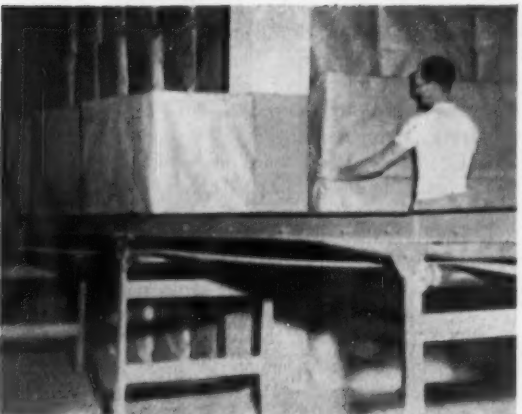
3. OFF TRAY ELEVATOR, the cans are discharged onto roller conveyor section hung from ceiling.



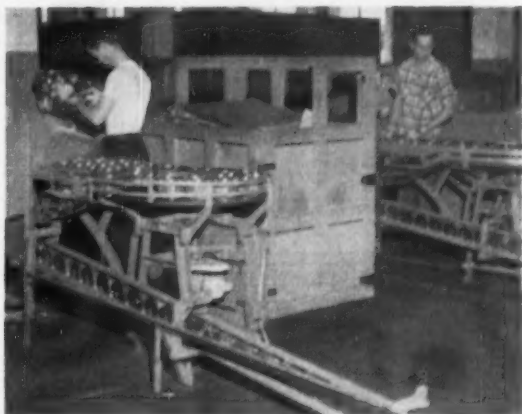
4. ONE MAN DIRECTS FLOW of cans required for immediate use and removes surplus to storage.



5. DOWN OFF OVERHEAD CONVEYOR, cans are moved to any one of five station conveyors.



6. OPTIONAL MOVEMENT, either direct to unpacking station or into storage until needed.



7. CANS ARE REMOVED from containers at unpacking, fed by cable conveyors to packing lines.

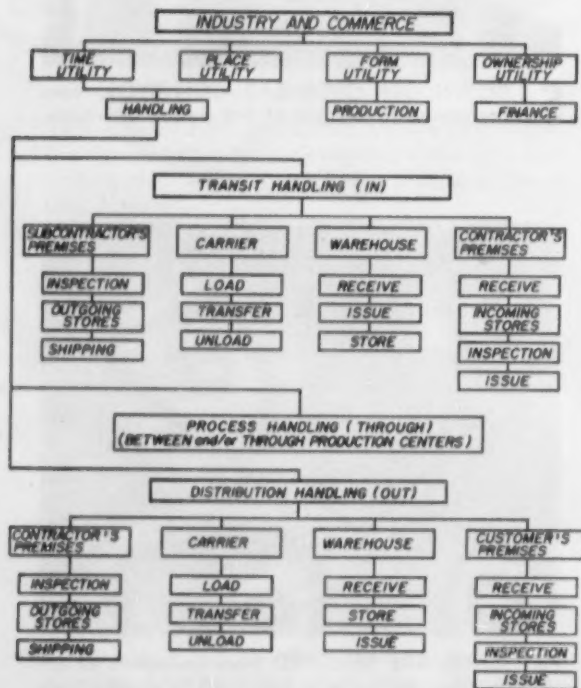
A Practical Manual of Material Handling Procedure

Installment 12

Section 13:

Organizing and Accounting Procedure for Material Handling & Packaging

by W. B. McClelland



HANDLING and packaging techniques are developing so rapidly that it seems logical to suggest to industry the need to designate responsibility for them as an independent line function.

No longer can a production manager have the handling and packaging function as an extra-curricular activity. There are so many new techniques and principles already established or being developed . . . there is so much need for more efficient methods to meet competition, now and in the immediate future . . . that it is time to have someone of authority devote himself exclusively to handling and packaging responsibilities.

Let's refer back to Chart 1 (reprinted here from Section 1 in the May, 1954, issue of FLOW).

The production manager has all he can do to keep himself informed, and to keep his organization going, if he is responsible for the creation of the Form Utility. Certainly he should turn over to some other line function the creation of the Time and Place Utility aspects of the organization. In other words, we suggest that there should be some function, on a horizontal line with the production manager, with responsibility for getting materials to the right place at the right time.

The organization chart presented here is just an outline to make the point. Across the top are indicated the four basic phases of industry—Engineering (we mean, of course, the designing of the product), Manufacturing, Merchandising and Finance. The only one of those four in which we are interested, at the moment, is the manufacturing aspect. This chart indicates that handling and production functions should be split in a line position directly under the top manufacturing executive. That is to say, there should be a Handling and Packaging Manager on the same base line, and in the same position in the organization, as the Production Manager.

The plant procedure manual might read something like this: Handling and Packaging Manager—responsible for getting materials to the right place at the right time. That involves all operations in the moving and storing of material from the last production operation

in our vendor's plant until it arrives at the first production operation in our customer's plant.

And for the production manager, the procedure manual might read something like this: Production Manager—responsible for the operations which give chemical and physical form to the product. That is somewhat theoretical and, to make this thing practical, of course, you have to make some arbitrary decisions as to where one function starts and the other one ends.

You can see that this organization chart is patterned after Chart 1, which indicated the phases of material handling. The Handling Manager, then, has three basic functions under him:

- (1) The Transit Handling and Packaging phase;
- (2) Process Handling—all handling operations necessary to get to and/or through forming or production operations (production centers, if you wish to call them that); and
- (3) Distribution Handling and Packaging, which has to do with all operations involved from the time the last production operation is finished until the material arrives at the first production operation in a customer's plant.

You will notice we have also suggested that the traffic aspect of an operation be a function under the jurisdiction of the Handling and Packaging Manager. It is to be inferred from this chart that this Handling Manager is in a line operating position, that his duties are to organize his job and get it done as far, we repeat, as the handling and packaging aspects are concerned. He is just as much an operating man as the Production Manager, who is responsible for seeing

that the machines do their jobs and get the product out in accordance with specifications and drawings.

A planning function is always necessary; so, you will notice that we have shown Industrial Engineering with plant layout, material handling, packaging, methods, time study, and tool design. This responsibility would, of course, include any other of the staff or recommending functions that fall within the scope of the department. The industrial engineer, then, is responsible for the planning and the recommendations for any alterations or revisions to be made. To be sure, he consults with the Handling Manager and anybody else in the plant who is involved in any recommendations he can make. But, by and large, his basic function is one of staff type, a recommending and advising function. He services both the Handling Manager and the Production Manager—together under his jurisdiction for both the Time and Place Utility function—as well as the forming function.

Accounting for Material Handling and Packaging

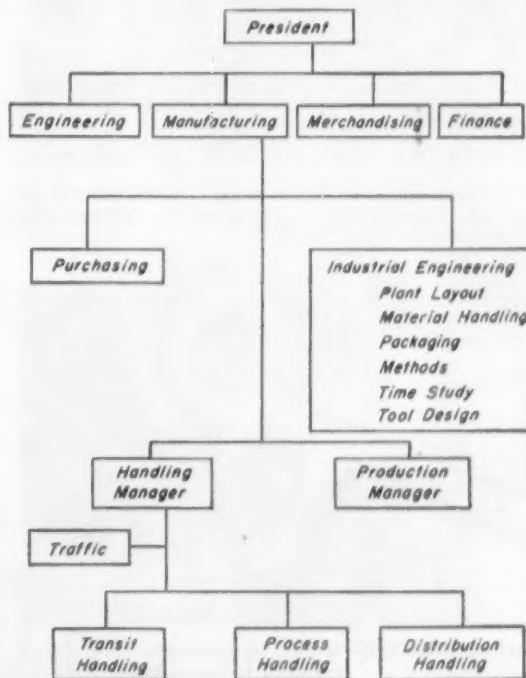
The operations required to get materials to the right place at the right time incur a sizeable share of overall cost. It has been estimated that these costs exceed the amount incurred in giving material shape and form. If that be true, or anywhere near true, it seems logical to expect that accounting methods will be altered so that top management reports will indicate the cost for handling and the cost of production under separate items on the operating statement.

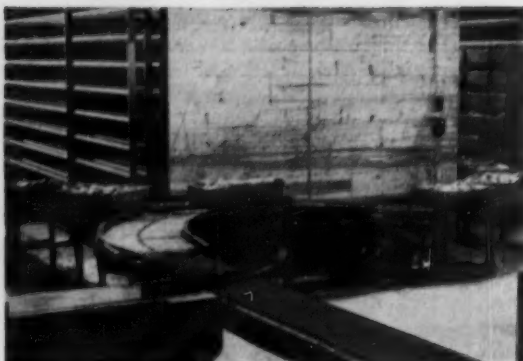
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Proposed Cost-of-Goods Statement

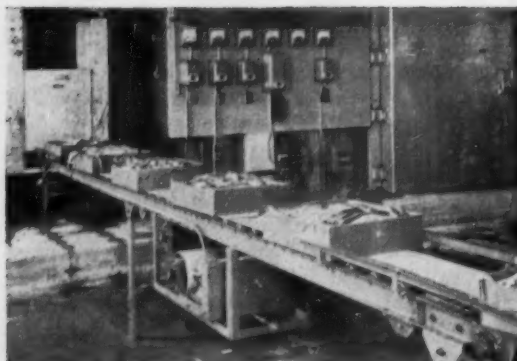
Net Sales	XXXXX
Less—Cost of Goods Manufactured	
Production	
Labor	XXXXX
Material	XXXXX
Burden	XXXXX
Total Production Cost	XXXXX
Handling	
Labor	XXXXX
Material	XXXXX
Burden	XXXXX
Total Handling Cost	XXXXX
Total Cost of Goods Manufactured	XXXXX
Net Profit on Sales	XXXXX

PROPOSED PLANT ORGANIZATION CHART





POWER BELT and roller conveyor combine to take cartons of processed fish around arc to freezing cells.



FILLED CARTONS pass through insulated drop floor after coming from inspection and weighing station.



FREEZING PIPE RACKS will hold 168,000 pounds of cartoned fish. Conveyor adapts well to cold storage.



TRUCK LOADING is also by conveyor. Five million pounds of fish are processed between May, October.

Cold Storage Conveyor System

Suckers are really taken for a ride at United Cape Cod Cranberry Company—suckers in this case being deheaded and gutted fish.

Millions of the fish are received, processed, stored and distributed by the Sandwich, Massachusetts, firm. And, all of this is done in a six month period—between May 1 and October 31. Since the fish must be frozen, the company first installed freezing pipe racks to hold 168,000 pounds of fish in cartons. Also, there is a frozen storage room with a capacity of 750,000 pounds.

The next step was to devise a method that would take the fish through all the stages from receiving to shipping, as quickly and as economically as possible. The most effective solution was an integrated conveyor system which utilizes space extremely well, requires comparatively little manpower, and provides a smooth, continuous operation.

Fish are received by the company from Atlantic Coast fishermen, cleaned, packed into cartons and weighed. From the weighing station they move over roller conveyor to a horizontal belt conveyor where inspection takes place. Cartons then pass through an insulated drop door into the first freezing cell. A galvanized flat wire belt conveyor, 100 feet long and especially adaptable to cold storage, carries the cartons around a 180 degree course to freezing cell two, or into racks in the first freezing cell, depending on available rack space.

Cartons are removed from the belt and placed on the racks manually. A cleated, inclined flat wire belt

(Continued on page 88)

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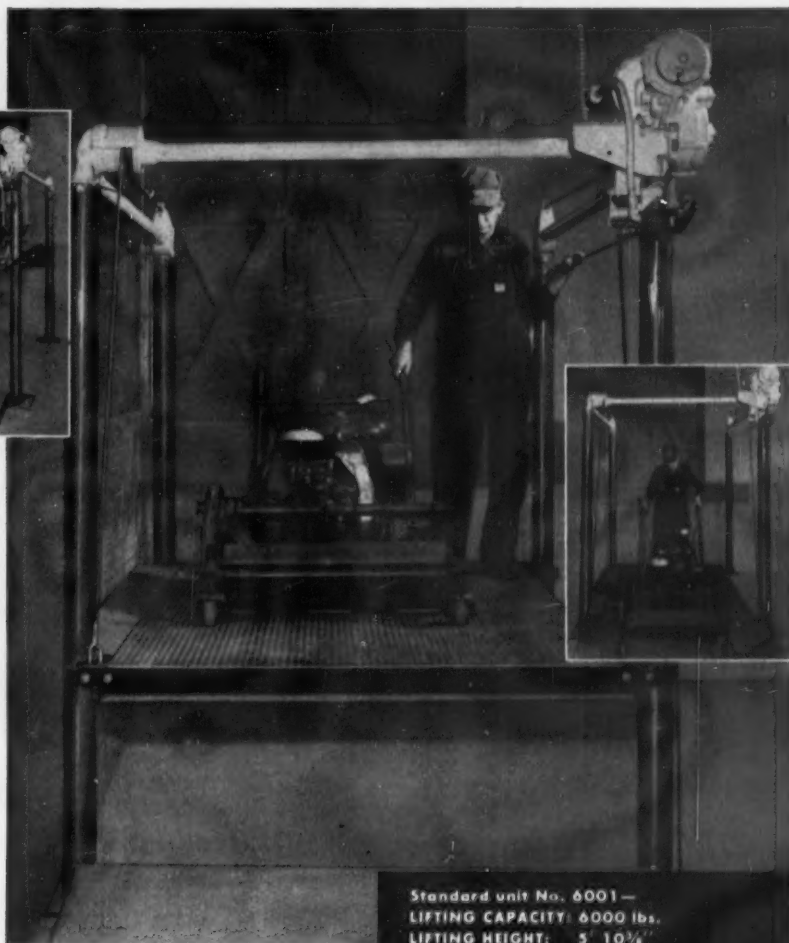
GLOBE

Electro-LOADER

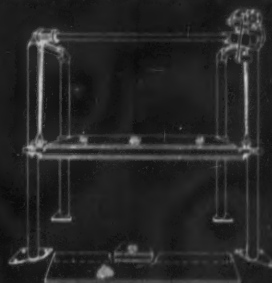
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STORAGE CONVEYOR . . .

(Continued from page 86)

conveyor, conjunctive with the belt in freezing cell two, carries frozen fish cartons to storage upstairs. At the time of shipment this same conveyor returns the fish to cell two, where the long conveyor, now reversed, moves them to the shipping area.

A large convenient storage area with spur conveyors, adjacent to shipping and next to the far end of the two freezing cells, is filled direct from either of the two long belts. From here, or from the upstairs storage area, the fish are loaded over conventional roller units with a booster belt directly into trucks, and away they go to market.

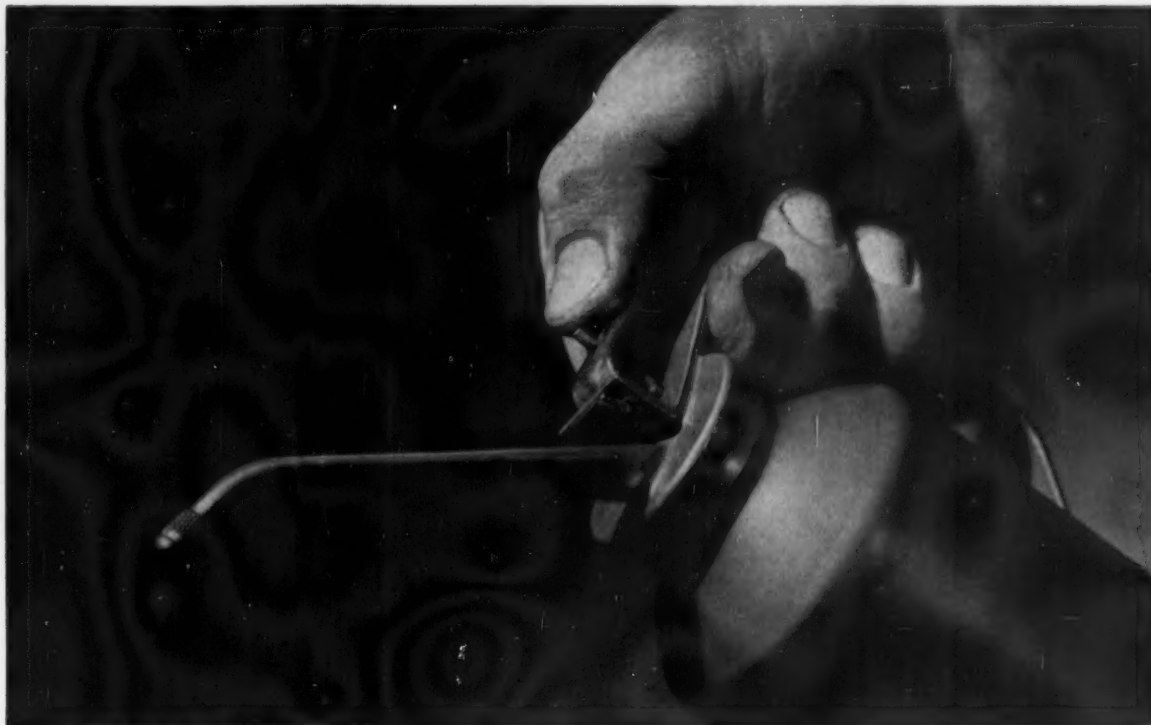
S-CURVE CRANE . . .

(Continued from page 81)

Actually, the special design is very simple. Instead of single wheels on the crane bridge, dual wheels were installed, with outer wheels $1\frac{1}{4}$ inches larger in diameter than inner wheels. While running straight, all outer, or larger, wheels make contact with the runway. Then, when the runway begins to curve, the wheels which make the smaller radius transfer to another track in line with the inner set of dual wheels. Thus, while all wheels turn at the same speed, the larger wheels will travel a greater distance.

The crane crosses three transfers in traveling the entire length of the S-curve. For safety at these transfers, both inner and outer wheels ride on their tracks for about 3 feet. And, the operation of the crane remains the same—with no interruptions or slowdowns.

Circle No. 27 on Reader Service Card for more information



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1530 Chestnut Street

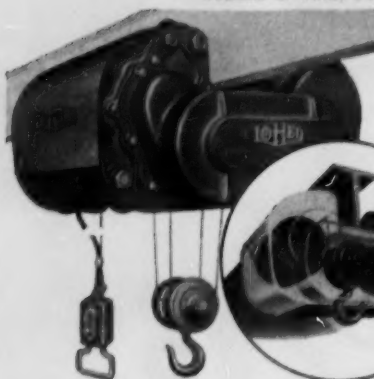
Portland, Ore.—Equitable Building San Francisco—660 Market Street

Industrial financing available in Canada through Canadian Acceptance Corporation Limited
Circle No. 33 on Reader Service Card for more information

Materials handling is easier, cheaper, with **LO-HED HOISTS**

WHICH TYPE OF LO-HED IS BEST FOR YOU?

HERE'S THE FAMOUS CUSTOMIZED LO-HED

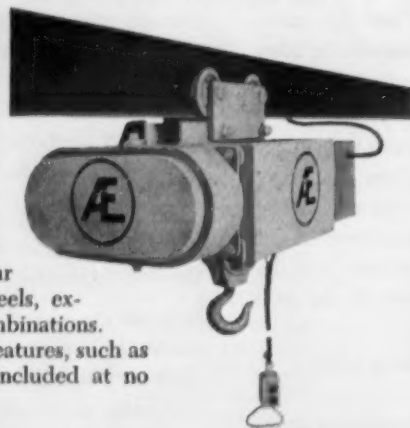


Available in a range of capacities from $\frac{1}{4}$ ton to 12 tons...and five suspension types...Customized Lo-Hed is feature-packed for operational speed, safety and economy. Its design provides low headroom. It's built for longer service life. The bottom block is shrouded. The hook, on an oil-impregnated bearing, prevents fouled lines. On a-c installations a transformer puts only 110 volts at the push-button. And all these extra advantages are yours at no extra

cost...Talk over with your local Lo-Hed representative the adaptability of Customized Lo-Hed for your special requirements.

AND HERE'S THE PACE-SETTING STANDARD LO-HED

Standard Lo-Hed, as you've heard, is the sensation of the heavy duty hoist field. Available in 2 and 3 ton capacities, it's truly a standard hoist; quantity-produced and ready for shipment from stock. The last word in modern engineering and materials, its welded steel chassis combines light weight and rigidity. Its straight line spur gear drive eliminates worm-wheels, extended shafts and split gear combinations. Its price is right, too, and extra features, such as lower limit safety switch, are included at no extra cost.



Write for literature describing either the Customized Lo-Hed or the Standard Lo-Hed, or both. Lo-Hed Hoists are cutting material handling costs in plants from coast to coast. American Engineering Company, 0000 Aramingo Ave., Philadelphia 25, Pa.

AMERICAN ENGINEERING

COMPANY

Philadelphia 25, Penna.

Affiliated Engineering Corporations, Ltd., Montreal 16, P. Q.
Bowden Industries Ltd., Toronto 3, Ont.

AE Products are: Marine Deck Auxiliaries, Hela-Shaw and Hydramite Fluid Power, Lo-Hed Hoists, Lo-Hed Car Pullers, Taylor, Perfect Spread and Vibra-Grate Stokers.

PRACTICAL MANUAL . . .

(Continued from page 85)

Financial reports are historical records of the financial aspects of an operation. Exploring the possibilities of mechanical handling has led to promising potentials for lowering industry's break-even point. But observation indicates that industry must analyze handling costs before their effect upon breakeven points can be known. In the conventional system of cost accounting, handling costs are lumped into burden and allocated, along with other charges, to production activities. There appears to be an urgent need for alteration in cost accounting methods so that handling costs will be reported as individual items to the top manager.

Whose Responsibility?

We question whether the shift could or should be initiated by the accountant. By providing the typical financial report he becomes the historian of monetary aspects of the functions involved in industry and commerce. Budgets which he establishes, or at least records, are allotments to functions within the organization, and standard costs become the guide-posts of individual action.

In an attempt to make this point, let us discuss the conventional reports provided by the accountant. The cost-of-goods manufacturer's statement is a summation of the performance of manufacturing functions in an enterprise. The profit-and-loss statement reports the cost of goods provided by the manufacturing group and the performance of the marketing and administrative functions. The surplus statement indicates the accumulated earnings of the concern and the disposition made of these earnings, the jurisdiction of which rests with the board of directors.

The first step, then, is to determine the type of report which top management needs and wants. It seems logical to suggest that they labor material and burden for production as well as labor material and burden for handling, shown separately in the Cost-of-Goods Manufactured Statement.

A suggestion is made here in the

U. S. Metals Refining Co., Carteret, New Jersey

doubles truck output

with Motorola 2-way Radio

No waste time here. Deadheading is practically eliminated.



Covering 185 acres of the U. S. Metals Refining Co. with material handling trucks was one big headache . . . deadheading time was sky-high and foremen had to make dozens of phone calls and run all over the grounds to find vehicles when wanted.

A good communication system was needed—and was found—in Motorola 2-way radio. Now a central dispatcher actually supervises every operation right from his office . . . directs vehicles from job to job without their having to return "home" each time. With deadheading cut to a bare minimum, the number of payloads has increased tremendously. Any truck or crane can be located and contacted instantly . . . locomotives are even radio equipped for top efficiency.

In the words of R. H. Graves, Assistant to the Vice President and Manager, "At a minimum, radio has doubled the output accomplished by each truck."

With this new cost saving tool, the plant protection patrol is now handled by two radio equipped jeeps. All foot patrol is eliminated, releasing 13 men for duty elsewhere—a considerable saving right there. In dozens of other ways, Motorola 2-way radio has increased output and slashed costs.

Motorola will help you increase your output and save money from the day your 2-way radio is installed. You can get it on the terms you want—cash purchase, installment plan, lease with or without equity, and optional installation and maintenance all included in a single contract. WRITE TODAY.

Dispatched by radio, 25-ton crane arrived simultaneously with load of logs for refining process.



Just loaded, truck's destination reported to "H.Q.," for scheduling return load.



Motorola

2-WAY RADIO

Motorola Communications & Electronics, Inc.
A SUBSIDIARY OF MOTOROLA, INC.

4501 AUGUSTA BOULEVARD, CHICAGO 51, ILLINOIS
ROGERS MAJESTIC ELECTRONICS LTD. TORONTO CANADA

Motorola consistently supplies more mobile radio than all others combined.

Proof of acceptance, experience and quality.

The only COMPLETE radio communications service—

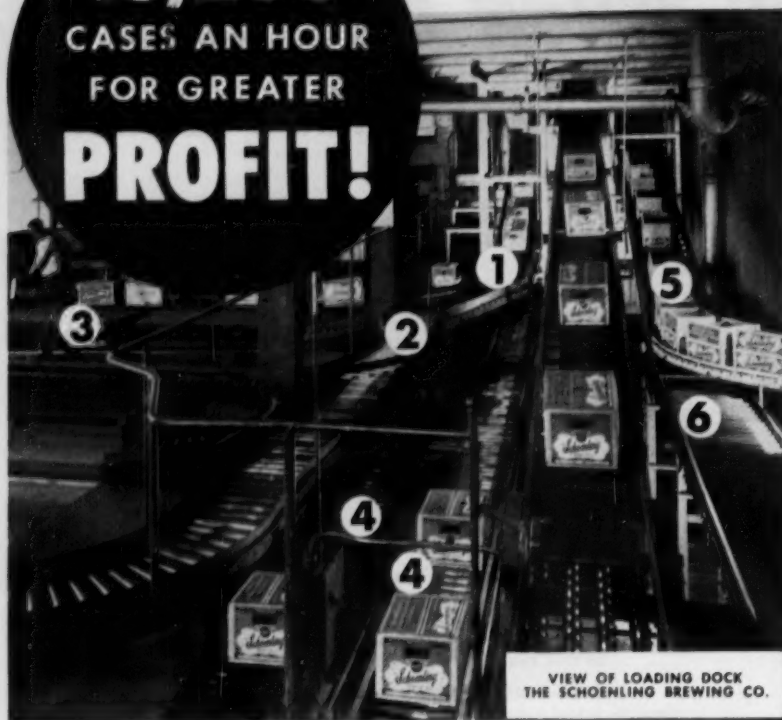
specialized engineering . . . product . . . customer service . . .

parts . . . installation . . . maintenance . . . finance . . . lease.

"The best costs you less—specify Motorola".

Circle No. 143 on Reader Service Card for more information

**13,200
CASES AN HOUR
FOR GREATER
PROFIT!**



VIEW OF LOADING DOCK
THE SCHOENLING BREWING CO.

VERSATILE BUSCHMAN CONVEYORS SOLVE CASE- HANDLING PROBLEM

Each case carries extra profit now! When the Schoenling Brewing Company, Cincinnati, Ohio, wanted to increase production, efficiency and profit, they turned to Buschman engineers to cut materials handling costs. Result: a completely integrated system that handles 13,200 cases per hour.

Through years of experience and leadership in the materials handling field, Buschman has constantly produced the ultimate in conveyors that eliminate bottlenecks . . . reduce manual handling to an absolute minimum.

A Buschman Conveyor System, tailored to meet your specific needs, can be the answer to greater efficiency and profits in your plant.

Write today for literature. ➔



COMPLETE CONVEYOR SYSTEMS FOR ALL TYPES OF INDUSTRIES

THE E. W. BUSCHMAN COMPANY
4450 CLIFTON AVENUE • CINCINNATI 32, OHIO
Circle No. 28 on Reader Service Card for more information

➊ Powered belts bring filled cases from bottling and storage for loading trucks. Rate of flow is controlled at each truck bay.

➋ Movable curved deflector guides cases onto proper truck spur.

➌ Counterbalanced spur in raised position to receive filled cases for loading truck. In lowered position, spur carries cases of "empties" from truck to live roller lines (4) which lead to storage and bottle washer. Six trucks can be loaded and unloaded simultaneously.

➍ Two live roller lines carry "empties" to storage and bottle washer.

➎ Powered belt carries cases of new cans to third floor storage.

➏ Live roller section feeds belt to third floor.

All conveyor lines in the Schoenling plant are interconnected and reversible so that cases can be conveyed between any two locations.

C-119-EWB

PRACTICAL MANUAL

Continued

final chart. The handling operations, as well as sub-functions set up to best suit the processes being conducted, can be budgeted and recorded. Each of these functions can constitute a cost center. Summarizing these cost centers can provide a total direct cost for handling. Adding the equitable allocation of servicing or staff costs provides the total handling cost for the operating statement—the responsibility of the Material Handling and Packaging Manager.

To Make It Work

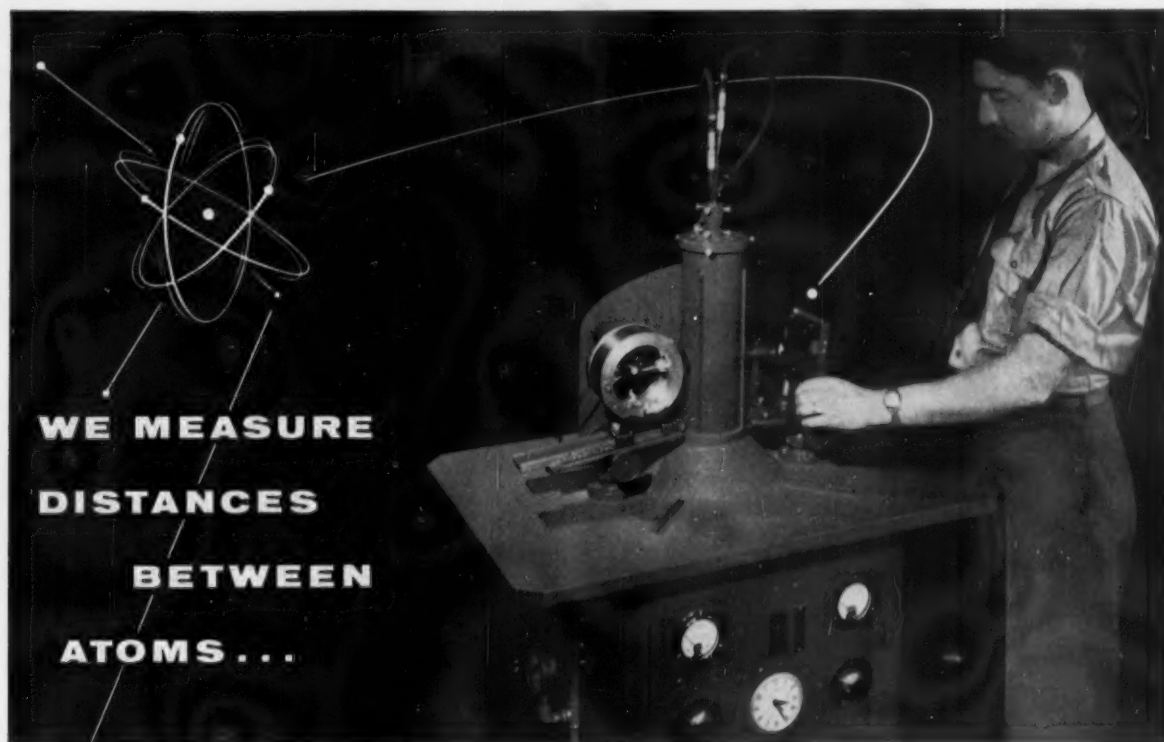
To make such a plan workable not only from the accounting but also from the administrative point of view, it is necessary to establish, arbitrarily, the boundaries of production centers. These boundaries might even be designated by lines on the floor, with Material Handling responsible for moving material to and from these areas and Production responsible for activity within the area.

Inasmuch as the account is the historian of the monetary aspects, he cannot be expected to initiate such a plan. However, if top management will define responsibility and establish accounting policy, the accountant can consolidate costs to comply with the policies and provide the summary report in any form that will best suit the purposes of that management.

This concludes the series of installments constituting FLOW's *Practical Manual of Material Handling Procedure*, which started with the May, 1954, issue.

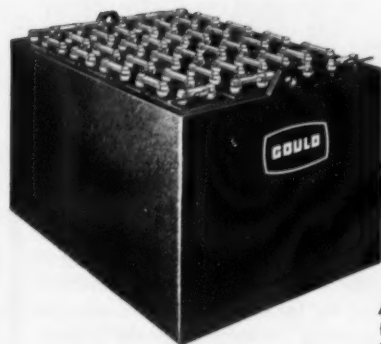
The Editors feel, and reader response has demonstrated, that the basic concepts presented during the past year have supplied a long-felt need.

Readers who have mislaid a few sections may have them replaced by reprints, but the entire series is not yet available as a unit. The supply of reprints is limited and can only be offered on a first-come-first-serve basis.



**WE MEASURE
DISTANCES
BETWEEN
ATOMS...**

TO GIVE YOU *Advance Design* BATTERIES!



America's Finest!
GOULD
Industrial
Truck Batteries

The X-Ray Diffraction Unit shown above is one of the few instruments of its kind being used in basic battery research. It identifies complex metallic compounds which cannot be identified practically by chemical means. It does this by actually indicating on film the distances between atoms, enabling Gould engineers to study atomic structure.

This instrument . . . this research . . . is revealing hitherto unknown facts about the relationship between molecular activity and battery performance . . . pointing the way toward more powerful, longer lasting active materials. That's why you get *better* batteries when you buy Gould!

For the full story on Gould Research, send for Booklet 749.

©1955 Gould-National Batteries, Inc.

GOULD
Batteries

• **GOULD-NATIONAL BATTERIES, INC.**
TRENTON 7, N. J.

"BETTER BATTERIES THROUGH RESEARCH"

Always Use Gould-National Automobile and Truck Batteries

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JUNE, 1955

93



Continuous flow or "spot" handling...



Standard builds conveying equipment to speed both!

Whatever you need in conveyors . . . whatever you have to handle — Standard engineers are qualified to recommend the most effective application of conveyors to save you time, money and manpower. Thousands of installations speed parts, assemblies, drums, barrels, bundles, cartons, cases, boxes in almost any industry you can name.

Standard can furnish complete engineered systems (comprising power and gravity roller, belt, slat, push-bar and special conveyors). Also available are portable, self-contained conveyor units for "spot" use in warehouse or shipping room (Handibelt, Handipiler, Incline-belt, Extend-oveyor and Litewate sectional conveyors).

Tell us what you make or handle — or your specific conveyor needs. Call the Standard Conveyor engineer near you. He's listed in your classified phone book. Or write for Standard's General Catalog, address: Dept. FL-65

STANDARD CONVEYOR COMPANY

General Offices: North St. Paul 9, Minnesota
Sales and Service in Principal Cities



GRAVITY & POWER Conveyors

ROLLER • SLAT • WHEEL
SECTIONAL • BELT • CHAIN • PUSH-BAR

PORTABLE CONVEYOR UNITS:

HANDBELT • INCLINEBELT • EXTENDOVEYOR • UTILITY BELT-VEYOR
HANDIPILER • LEVEL BELT • LITEWATE • HANDIDRIVE
PNEUMATIC TUBE SYSTEMS



THREE-ONE SYSTEM . . .

(Continued from page 69)

of it is mixed with incoming baled stock going to the beaters.

The balance is conveyed to overhead bins ranged above a long gallery on the basement floor. A monorail system with drop-bottom hopper cars runs directly beneath these bins. The cars are stopped under the bins by push-button control, and the contents of the bins are emptied into the cars. When all bins are empty, or when the car has been filled, the car is released by push-button and its operation then becomes automatic.

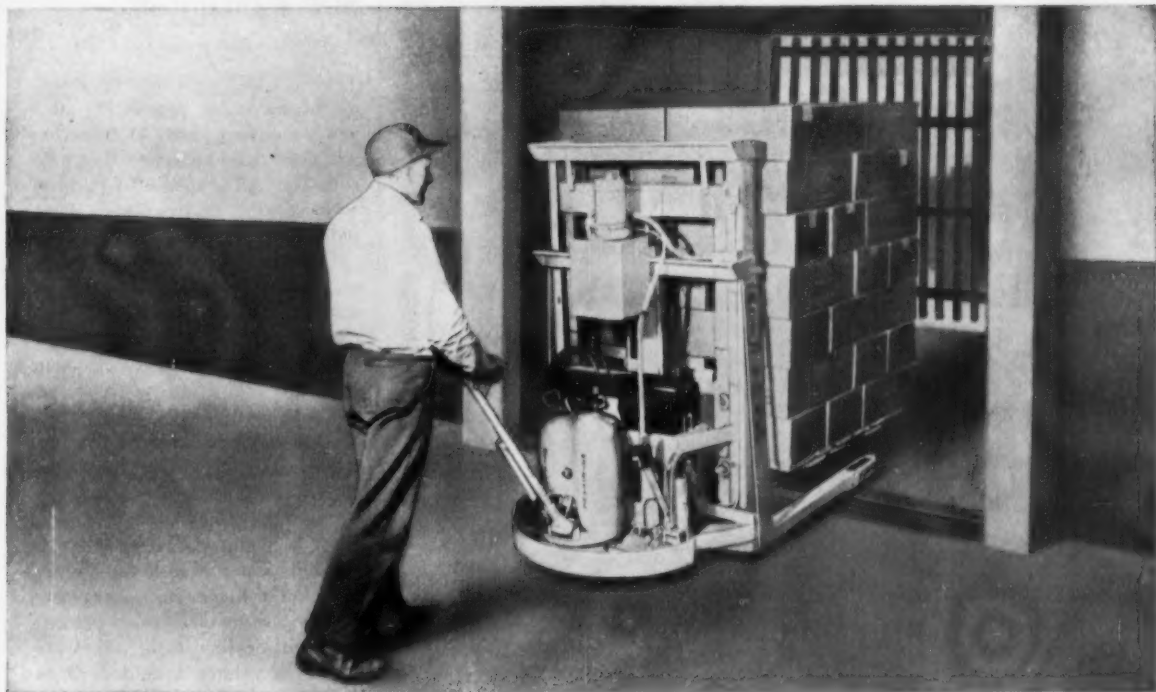
The car proceeds to the junction of the two sides of the monorail loop, which is at an elevator shaft equipped with a rail switch. When the loaded car passes the rail switch, contacts automatically close the switch and start the loaded car into the elevator. Again, automatic contacts stop its horizontal motion and move it vertically up the elevator. At the top of the shaft, the car moves off to dump its load into hoppers which feed chutes leading to the beaters. For returning empty cars, the process is reversed.

The final handling phase takes place with smaller, finished tubes which are lacquered, air dried and baked. To hasten the air drying, and to conserve space, they are tumbled on specially-designed hooks on an over-and-under conveyor made of two strands of light-weight chain.

The conveyor travels over three stands. The chain runs continuously over the top sprockets on the first stand, down the back side, under sprockets at the bottom of the second stand and up over the top sprockets on the third stand. It then travels down under other sprockets and up to the door of the oven. The tubes are discharged at the far side of the oven, and the conveyor returns under the bottom.

The specially-designed hooks actually are elongated rings fastened to the chain. An opening just wide enough to admit the tubes is cut out of the front of each ring. As the conveyor turns over top and bottom sprockets, the tubes roll from one end of the rings to the other, reducing drying time considerably.

Circle No. 114 on Reader Service Card for more information



ON THE ELEVATOR... *with* FREIGHT CAPACITY to Spare!

Excessive re-handling of loads because of limited elevator capacities is often completely eliminated with Moto-Trucs. The light, yet powerful compactness of a Moto-Truc lets you move load and truck into an elevator with weight capacity to spare.

The complete line of Moto-Trucs are designed and built for economical, space saving operation. Inch for inch . . . pound for pound . . . Moto-Trucs are the smallest, yet the most powerful walkie trucks in the world.

Write for Bulletin No. 54 . . . it covers the complete Moto-Truc line.



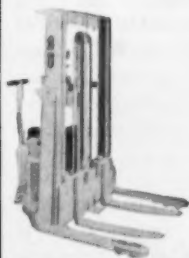
The MOTO-TRUC Co.

Representatives in Principal Cities

1955 E. 59th St. • Cleveland 3, Ohio

Pallet . . . Platform . . . Hi-Lift Trucks
The Originators of the Walkie and
Small Rider Type Truck.

Hi-lift "Walkie" type
3000-4000 lbs. capacity

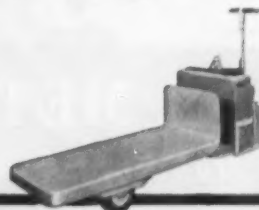


a MOTO-TRUC for every purpose...

Pallet type "Walkie" truck
4000-6000 lbs. capacity



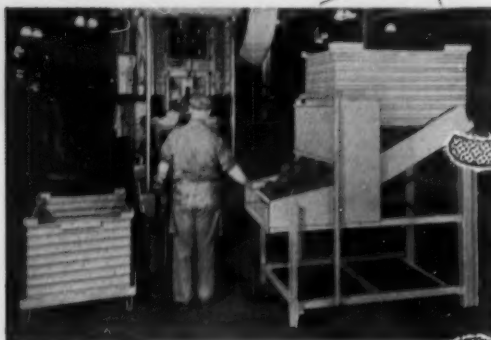
Platform "Walkie" type
4,000-10,000 lbs. capacity



Grip-All Tractor



Production goes faster with multi-feature **Work-O-Matics***



WITH Work-O-Matic drop-bottom boxes and Positioning Stands, parts flow to machine operators at efficient work-level height. The reservoir tray avoids "production lag" while empty boxes are being replaced. Gone forever is the tiring stoop-bend-stretch routine, no more waste motion at machines or costly supply delays. Besides slashing production costs, Work-O-Matics mean increased storage capacity, safe tiering and mechanical dumping.

Write today for illustrated literature on industry's broadest line of Material Handling Equipment. Address The Union Metal Manufacturing Company, Canton 5, Ohio.

From the smallest shop boxes to huge production positioning hoppers.

*Patent No. 2,445,038. Other patents pending.

UNION METAL

Material Handling Equipment

Circle No. 126 on Reader Service Card for more information

NEW WAREHOUSE . . .

(Continued from page 76)

as the basis for production in a new warehouse plant. At once, you will note, this halves the labor payroll. The half lopped off will offset at least some of the higher occupancy cost.

Since the firm has had wage costs of 2.0 percent and occupancy costs of 0.3 percent of sales, total costs have been 2.3 percent.

The new warehouse will incur \$25,000 occupancy expense, which, at initial sales volume, represents 0.86 percent. Adding the 1.0 percent expected labor cost, the total is 1.86 percent.

Since the total warehouse cost in the new plant will be less than in the old, a new warehouse is wise despite the higher occupancy rate.

Note, moreover, that percentages will decline in the new warehouse as volume is added. Occupancy cost will drop in percentage since it is fixed in dollars and variable only in percentage. Labor cost is a variable expense which will increase only in dollars—but not in percent.

Can Not Afford It?

When you can expand at declining costs in a new warehouse, the question is not *how* you can afford it but, rather, how can you *not* afford it?

Note that the new warehouse shows profit at *half* the volume it can handle, and that the dollar profit rides faster than sales. It reaches the point where, at capacity volume or less, the firm can reduce its prices and margins one percentage point to get more business for a second expansion program—and still make more dollar profit than it could in the old plant.

These considerations are taken from the less favorable aspects of the tabulation, assuming production only up to the minimum acceptable standard. Overhead in the old warehouse could scarcely be less!

Cheap occupancy comes as easy as the Yankee dollar in New Hampshire. But can you afford to stay where you are? Substitute your own figures and see!

Use this Reader
Service Card to get
Detailed information on
new ideas and new
products which were
exhibited at the . . .
6th National Material
Handling Exposition



Lightweight, All-Purpose Framing



Designed for applications formerly requiring lumber and angle iron, Dexion is all-purpose, light, industrial framing and fabricating steel for shelving, rack-

ing, warehousing, production line and material handling equipment. It is a slotted angle not requiring drilling, welding or complicated accessories.

Acme Steel Co., Dexion Div.
Circle No. 400

Powered Strapping Machine

Instead of seals, machine uses spot-weld joints on $\frac{1}{8}$, $\frac{1}{2}$, $\frac{3}{8}$, and $\frac{1}{4}$ -inch flat steel strapping. It will apply up to 1000 straps per hour, according to the manufacturer. It provides a consistent, pre-determined tension on all bands.

*Acme Steel Co.,
Acme Steel Products Div.*
Circle No. 401

Shock-Absorbing Casters

Shock-absorbing casters, both dual and single wheel, designed for jet engine dollies. Largest size made uses 6.00 x 9 wheel, with capacity of 1800 pounds. Spring-suspended wheels absorb shock.

Aerol Co., Inc.
Circle No. 402

Socketless Fittings

Socketless fittings and hose for low pressure applications which are said to make hose line replacement easy. A unique design assures a tight connection without clamp, lug, bolt or socket.

Aeroquip Corporation
Circle No. 403

ALONG THE AISLES . . .

Adjustable Chairs, Stools

Adjustable chairs and stools which have adjusting mechanism working on the same principle as a coaster brake—when pressure is applied, it grips.

Ajusto Equipment Co.

Circle No. 404

Sealed Casters



A new, completely-sealed caster line for general industrial use where positive lubrication retention is required, as well as for practical elimination of periodic maintenance. Positive lubricant seals have been incorporated at 3 locations.

Albion Industries, Inc.

Circle No. 405

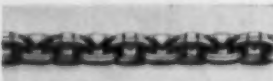
Conveyor Line Spot Coder

Coding device for power or roller conveyors. Spot-prints anywhere on carton from its own ink reservoir. Has type storage compartment for ready change of copy. It acts as its own guide rail, to insure perfect spot registration.

Algene Marking Equipment Co.

Circle No. 406

Extra-Strong Chain



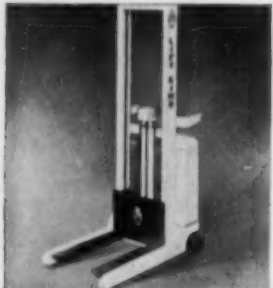
New X-weld Accoloy Chain lugs are welded with $2\frac{1}{4}$ times the normal weld area. This is said to double the security and the weld. Chain is rendered non-kinking by specially designed lug.

American Chain & Cable Co., Inc.

American Chain Division

Circle No. 407

Fork or Platform Stacker



The "Lift King", with 1500 lb. capacity, can be equipped with platform, forks, or barrel grab. Two models lift, respectively, to 60 and 80 inches. Overall width is 41 in. Battery-powered hydraulic system includes built-in charger.

Allied Mfg. & Sales Co.

Circle No. 408

Heavy Duty Crawler Tractor

Torque converter and standard transmission drives are offered in the HD-16 crawler tractor. Torque converter provides 150 net engine h.p., up to 60,000 lbs. drawbar pull. Standard transmission produces 131 belt h.p., up to 35,945 lbs. drawbar pull.

Allis-Chalmers Mfg. Co.

Circle No. 409

Cable-Conveyors



Less storage, easy installation, simplicity of design, less weight and reduced power requirements are features cited for American Cable-Link Conveyor Systems. They are available in light, medium and heavy-duty versions in variable speeds.

American Cable-Link Co.

Circle No. 410

Rugged Pulling Device

The Wright Type "R" Pull-A-Way is a versatile tool for pulling diversified loads. It weighs less than nine pounds, yet can move a freight car. Has removable, reversible handle with eight-inch minimum handle movement.

American Chain & Cable Co.

Wright Hoist Division

Circle No. 411

LP Gas Converters

A complete line of carburetion equipment for utilizing LP gas as a motor fuel in internal combustion engines. Use of LP gas means lower maintenance costs, reduction in obnoxious fumes and exhaust odors and longer engine life, says the manufacturer.

American Liquid Gas Corp.

Carburetion Division

Circle No. 412

New Rack Preview

A new development in pallet racks was previewed. Said to follow the company's principle of marketing racks which are assembled without bolting or welding. It features a new wedge lock. Beds are vertically adjustable on three-inch centers. Will be available this summer.

American Metal Products Co.

Circle No. 413

Automatic Drum Stackers

Three sizes of stackers for handling drums without skids or pallets—Model E. L. 55-2 for double stacking, Model E. L. 55-3 for triple stacking, and Model E. L. 55-2½ for handling drums to and from vehicles. Each has "Liftomatic Jr." drum handling attachment. Narrow to permit reaching drums in back rows.

American Pulley Co.

Circle No. 414

Compact Power Crane

The Wayne Model 20 material handling and industrial yard crane is a

one-man operated, single-engine powered machine. Its compact design provides maximum maneuverability and mobility. It features full 10-ton lift, dual tires and four-wheel drive.

American Steel Dredge Co., Inc.

Wayne Crane Division

Circle No. 415

Cantilever Work Positioner



The Lowerator work positioner has a calibrated gear and spring mechanism in two-to-one ratio which eliminates undue mechanical strain. Sizes (with dispensing platforms) range up to 36" x 36" and total weight loads range up to one thousand pounds.

American Machine & Foundry Co.

Circle No. 416

Lift-Gate for Half-Ton Loads



Lightweight, elevating tailgate, primarily for $\frac{3}{4}$ and 1-ton trucks, can be used on larger vehicles where lighter capacity meets requirements. Gate is manual-spring closed, comes in ramp or square styles.

Anthony Company

Circle No. 417

Variable-Speed Air Hoist



Throttle control on this 1-ton air hoist regulates rate of lift, from instant full speed to barely-visible movement, or any speeds in between. Top and bottom hooks have safety snap; adjustable chain stop limits lift or drop; automatic brake locks when power is shut off; load stays up in any air-line failure.

The Aero Equipment Corp.

Circle No. 418

Hydraulic Crane

An indoor-outdoor fully hydraulic crane with continuous 360-degree boom rotation. Features 4-wheel drive and optional torque converter.

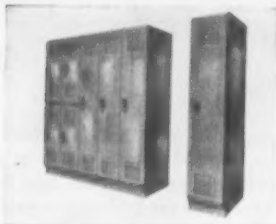
Austin-Western Company
Circle No. 419

Truck Rental or Leasing

Rental and leasing facilities for all types of fork trucks from 1000 to 15,000 pounds capacity, as well as cranes, pallet trucks, tractors, straddle trucks, etc.

Atlas Lift Truck Rentals, Inc.
Circle No. 420

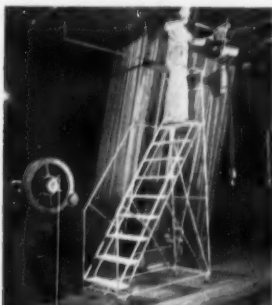
Floor Lockers



Floor lockers made in 26 different standard sizes. Constructed without bolts and nuts, affording 83 percent savings in erection time.

Aurora Equipment Company
Circle No. 421

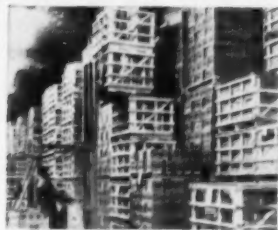
Safety Step Ladders



Hi-Boy safety step ladders are available as nine and 12 step ladders to reach working levels up to 15 feet. They are easily rolled on heavy-duty ball bearing casters equipped with foot-operated "Ballylocks."

The Ballymore Co.
Circle No. 422

Pallet-Crate



Collapsible pallet-crate combination for cold storage operation. Features counter-sunk nails throughout.

Arkansas Pallet Co.
Circle No. 423

Radio Controlled Tractor



The "Guide-O-Matic" system provides continuous, variable-speed remote control of tractors by radio. No truck operator is needed. Rolling load capacity is 10,000 lbs. Tractor picks up and discharges trailer, couples and uncouples automatically. It can back up too.

Barrett-Cravens Company
Circle No. 424

Transfer Belt Conveyor



Standardized, pre-engineered transfer belt conveyor comes in lengths from 8 to 44 ft.; widths of 18, 24, and 30 in.; with 3 or 5 h.p. drives. Designed especially for such applications as short tunnel conveyors, processing plants, and under track hoppers.

Barber-Greene Co.
Circle No. 425

"Pak-N-Stak" Tote Pans



A lightweight, leakproof, drawn tote pan designed to fit the needs of production shops of all types. Has all-rolled edge construction for maximum strength and safety. Minimum side taper allows full nesting. Contents remain visible while pans are in stacked position.

Bathey Mfg. Co.
Circle No. 426

15-Ton Crane

A 15-ton capacity crane with the following features: pin-connected boom, independent worm boom hoist, power booster clutches, tandem drums, alloy cast base, roomy cab, high-collapsible gantry, specially-designed carrier, 44 mph road speed.

Bay City Shovels, Inc.
Circle No. 427

Complete Line of Strapping

Flat steel strapping and complete line of tools for application. Also, pressure sensitive sealing tape. Together, the tape and steel strapping furnish answers for most strapping problems.

Brainard Steel Division
Sharon Steel Corp.
Circle No. 428

Low-Cost Pallet Loader



The Beacon Automatic pallet-loader will take 24 cases a minute and load and eject a pallet, ready for a fork truck to carry away. It is said to be a basically simple unit with only 12 circuits.

Beacon Machinery Co.
Circle No. 429

Multi-Use Belt Conveyor



Versa-Veyor Series S-12-A belt conveyors are ideal for use over stairways, for truck loading, or as boosters in gravity conveyor lines. Available in 11, 13, and 15-foot lengths, with or without undercarriage. All models feature aluminum alloy frame construction.

The Belt Corp.
Circle No. 430

Hydraulic Cylinders

Standard and custom-made hydraulic and pneumatic cylinders and flow control valves. From 1½ to 8 inch bore, and up to 156 inch stroke.

Benton Harbor Engineering Works, Inc.
Circle No. 431

Battery Operated Hydraulic Lift



A low-cost, 1000-lb. capacity, manually propelled lift travels in 28-in. aisles, elevates loads to 56 in. at 40 ft. per min., and weighs 565 lbs. Called "The Challenger", it is said to be priced low as a result of mass production.

Big Joe Manufacturing Co.
Circle No. 432

ALONG THE AISLES

Battery Charger

Battery charger for industrial truck batteries, from 250 ampere-hours to 900 ampere-hours, and from 12 to 72 volts. Design features safety and ruggedness.

Berg-Gibson Mfg. Co.

Circle No. 433

Steel Storage Shelving

Industrial shelving fabricated to government specifications and made in variety of combinations to solve almost any storage problem. Shelves are triple-bent (front and rear) for added strength at no extra cost. Available in open and closed type parts bin units.

Bernard Franklin Co., Inc.

Circle No. 434

Valve Bag-Packers

Capacity to handle, at extremely close weight tolerances, almost any free-flowing, powdered or granular materials at rates of from 50 to 150 tons per day is claimed for "Black Diamond Valve Bag Packers." Features are cleanliness, economy and trouble-free operation.

Black Products Co.

Circle No. 435

Adaptable Shelving



Each individual unit of this shelving is complete in itself, and is available as single or multiple units. Shelves can be adjusted in each unit without disturbing shelves in adjoining units.

Borroughs Manufacturing Co.

Circle No. 436

High Strength Wire Rope

Higher carbon-content steel is said to provide "Powersteel" wire rope with 15 percent greater strength, resistance to wear, shock, and crushing. Preformed with independent wire rope center.

Broderick & Bascom Rope Co.

Circle No. 437

Portable Belt Conveyor



Portable cleated belt conveyor which can be adjusted to angles up to 45 degrees. Tradenamed Conveyall, model

shown has 11-inch belt, is 30 feet long.

Bosworth Manufacturing Company

Circle No. 438

Adaptable Dumper



Brooks Load Luger, a truck body, with hydraulic arms, for loading and dumping bulk materials, handling cable reels, etc. Lifting capacity is 15,000 pounds, weight, 9,000 pounds.

Brooks Equipment & Mfg. Co.

Circle No. 439

Magnesium Hand Truck



Outstanding features of this magnesium hand truck are: light weight; all riveted construction; cast toe plate is filleted and thicker at the back where hand truck failure usually occurs. (Also available with a rolled plate formed toe plate.) Solid or semi-pneumatic tires are furnished as required.

Brooks & Perkins, Inc.

Circle No. 440

Hydraulic Crane

Three and four ton cranes with two-part hoist employ $\frac{3}{4}$ yd. excavator. Mounted on standard truck body for travelling over highways. Every crane function fully hydraulic.

Bucyrus-Erie Company

Circle No. 441

Equalizing Sling



Tradenamed Adjust-A-Leg, an equalizing and locking sling which handles unbalanced loads as easily as simple

loads. As the tension of the lift begins, the legs automatically adjust themselves and frictionally lock in position and the load is raised level.

The Caldwell Company, Inc.

Circle No. 442

Plastic Covered Wire Slings

Exhibited plastic and neoprene covered woven wire "Gripper" slings. The slings are claimed to be more flexible than wire rope and to have greater bearing surface. Also to provide greater product protection.

Cambridge Wire Cloth Co.

Circle No. 443

Variable Capacity Vibrative Feeder



Remote control of the "RMF 25 Resilient Flow Feeder" adjusts feed from zero to 25 tons per hr. based on sand at 100 lbs. per cubic foot. Employs new principle of leaf spring imbedded in rubber block.

Carrier Conveyor Corp.

Circle No. 444

New Tractor-Shovels



The 100 h.p. "Cat No. 6 Traxcavator", shown, is designed for fast handling of such materials as coal slag, gravel, and rock; has a $2\frac{1}{4}$ yd. bucket, can be equipped with 3 yd. bucket for light materials.

Caterpillar Tractor Co.

Circle No. 445

Fifth-Wheel Crane



A hydraulically operated device which is mounted on a fifth wheel to facilitate recovery of disabled tractors or for dead-heading tractors from one point to another and serves as general purpose mobile shop crane. Called, "Trailer Jockie".

Cemco Industries, Inc.

Circle No. 446

Completely Flexible Conveyor



All turns are adjustable on the Chain-O-Flex overhead powered conveyor. In-

stallation is said to be a simple nut-and-bolt job which can be done by any handy shop man using ordinary tools.
Chain-O-Flex Corp.

Circle No. 447

Low-Cost Overhead Conveyor



The Chainveyor, a low-cost, completely enclosed overhead conveyor for loads up to 60 lb. per ft. It can run up, down, or upside down. Four types of power drives are available for all requirements. Shown in photo (inset) is the No. 108-V vertical drive.

Chainveyor Corp.

Circle No. 448

Stacking-Type Cranes

Designed to provide utilization of maximum plant cube and minimum aisle area, along with high maneuverability of loads, the "Trak-Rak" is a top-running or under-running electric crane with vertical rotating column which handles loads as a fork truck would.

Chicago Tramrail Corp.

Circle No. 449

LP-Gas Carburetion

Complete conversion service to LP-Gas, which is said to reduce carbon monoxide as much as 90 percent due to complete combustion. All component parts used in conversion are Underwriter Laboratories approved.

Chicagomobile Power Corp.

Circle No. 450

Maintenance-Free Hoist



The Chisholm-Moore Losestar Hoist is claimed to be the first truly "heavy-duty" version of the small electric hoist. It is built to serve its normal life without costly maintenance interruptions. Available in capacities from 1/4 to one ton and in speeds of eight to 60 feet per minute.

*Chisholm-Moore Hoist Division
Columbus McKinnon Chain Corp.*

Circle No. 451

Payment Plan Financing Service

Nationwide service which relates installment payments to faster depreciation allowances under new tax laws. Terms running from three to 10 years.

Finance charges are 4 1/4% on the original unpaid balance.

C. I. T. Corp.

Circle No. 452

Semi-Noisless Vibrator



A new type semi-noisless air vibrator known as the type AC (air cushioned). Reciprocating action of a hard chrome plated piston develops the vibratory force. Both vibration intensity and frequency can be varied.

The Cleveland Vibrator Co.

Circle No. 453

Traveling Derrick

"Whirley Model 20" is a traveling, full revolving, long reaching, heavy duty steel derrick which can be on trucks or gantries—or stationary if desired. Capacities range from 27,000 lbs. at 165 ft. to 166,000 lbs. at 40 ft. Rotating structure turns on 4 sets of equalizing carriages to permit accurate determination of wheel loads.

Clyde Iron Works, Inc.

Circle No. 454

Automatic Door

Door delays are said to be reduced as much as 80% with bi-fold model Prestomatic door. It is a complete automatic door unit with a safety edge which automatically reverses the door closing motion on striking any obstruction.

Clark Door Co., Inc.

Circle No. 455

Complete Crane Line



There are 45 models in this line of power cranes, including self-propelled, truck mounted, rail mounted and fixed base. Capacities range from 2 1/2 tons to 46 tons.

Coles Cranes, Inc.

Circle No. 456

Low Head-room Hoist

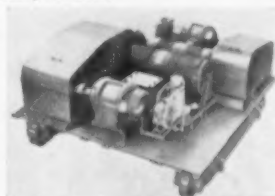
The Cable "Quik-Lift" electric hoist is designed to require minimum head-room (A model with 1000 lb. capacity at 15 fpm requires only 20 in.) It is available in capacities of 500 to 4000 pounds with hook, trolley, or motor driven trolley. The hoist is said to require minimum, if any, maintenance

because of high quality construction.

Coffing Hoist Co.

Circle No. 457

Trolley Hoists



Heavy-duty trolley hoists for use where frequent lifts are made and where high speed hoisting is required. Features include: positive magnetic type limit switch, all parts readily accessible for service or lubrication, all shafts lift out independently, large diameter hoist drums with machined grooves for full amount of cable without overlap, track gauge can be varied to suit requirements.

Conco Engineering Works

Circle No. 458

Industrial Engine

The Continental HD-260 Diesel Engine has a 260 cubic inch displacement, 3 7/8-inch bore, 5 1/2-inch stroke, and is capable of developing 59 hp (bare-engine hp) at 2000 rpm. Outstanding features are removable cylinder sleeves, Tocco-Hardened crankshaft, tri-metal replaceable main and connecting rod bearings and full length water jacket.

Continental Motors, Corp.

Circle No. 459

Live Roll Power Curve

Chain and sprocket drive with differential rolls keeps packages in line, under full control, while conveyor turns. Standard sizes match 12, 18, 24 and 30 in. belt conveyors.

Conveyor Speciality Co., Inc.

Circle No. 460

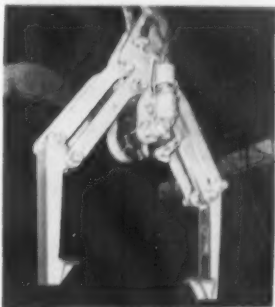
"Sausage-Link" Chain Conveyor

The Twist-O-Round Universal chain conveyor incorporates a chain of ball-and-socket joints having outboard rollers on four sides. The rollers move on four parallel tracks. Ball-socket joints permit twisting of individual links so that clevis can be in any position. Conveyor can turn in minimum radius of seven inches without sprockets or wheels.

Conveyor Systems, Inc.

Circle No. 461

Motor-Operated Coil Lifter



A 10-ton motor-operated coil lifter

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which handles coils in sizes from 18 to 60 inches. Features one-man operation, from the cab of an overhead crane. Also can be furnished manually operated.

Cullen-Friedstedt Company
Circle No. 462

For Personnel, Light Handling

Model 731 (for two passengers) and Model 730 (for one) are electric, personnel and light material handling vehicles for use in and between plants. They speed up movement, increasing individual productivity at low initial investment and operating cost.

Cushman Motor Works, Inc.
Circle No. 463

Bucket Conveyor

The model B Robolift bucket elevating conveyor handles up to 18 cubic feet of bulk materials per minute. It re-circulates and discharges at any number of stations on a production or processing line.

Counsel Machine Co., Inc.
Circle No. 464

Aluminum Shelf Truck



Six-wheel stock and line cart for production, warehouse and store operations is constructed entirely of aluminum. (Steel units also available.) Front and rear rubber-tired, swivel casters permit easy movement in crowded areas.

Crescent Metal Products, Inc.
Circle No. 465

Conveyor Chain Attachments

A complete line of conveyor chain attachments, tradenamed Super Steel, engineered to fit special and standard systems. The line features the different and unusual in the way of attachments.

Cutler Engineering
Circle No. 466

"Time-Tested" Hydraulic Endgates



"Time-test" photograph gives visual evidence of time and money savings in loading and unloading trucks equipped with hydraulic endgates. Features include a completely protected hydraulic system; factory pre-tested package assemblies; choice of ramping or non-ramping platforms; automatic or selective hand controls; and dual control levers for operation from either side.

Daybrook Hydraulic Division
Circle No. 467

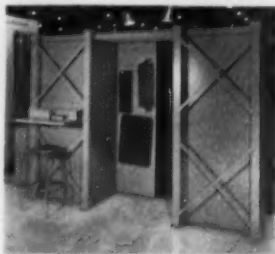
Engineering Aid

All types of specially designed control systems for fully automatic package handling from production to warehousing, order selection and shipping.

Dasol Corp.

Circle No. 468

Filing System for Templates



Self-contained storage and filing system for templates and other flat patterns includes a folding record desk on side of file to encourage accurate filing. Each file panel supports 600 lb. load.

DeLuxe Metal Furniture Co.
Circle No. 469

Closed Circuit TV

The Diamond UtiliVue Industrial Television System enables you to "see where you can't look". A new Series 400 camera is completely self contained, requiring no separate power unit or multi-conductor cable. The picture can be viewed on a standard TV receiver.

Diamond Power Specialty Corp.
Circle No. 470

Tramp Metal Detectors

Automatic detection of metal with two devices—one for ferrous metals only, the other for all types—for use with belt conveyors. They protect conveyors when equipment might be damaged by tramp metal, and inspect food products being handled. Adjustable sensitivity allows detection of particles of damaging size only, when desired.

Dings Magnetic Separator Co.
Circle No. 471

Coil Handler



With the Model H coil hook, the wedge is inserted from the inside diameter of the coil, next to banding. The crane hook is attached to the bale arm. As the arm is raised by the crane, the coil is lifted until it hangs in vertical position. Capacity is 1000 lbs.

Dixon Automatic Tool, Inc.
Circle No. 472

Easily Serviced Crane

The Model 77 Power Crane has been designed for long, trouble-free life, and for easy maintenance when required. It is claimed that clutches and brakes can be replaced or relined in less than 1/2 hour down time.

Dixie Crane & Shovel Co.
Circle No. 473

Roll-Over Hopper



The Nestier Roll-Over hopper is used in conjunction with a roller conveyor stand to provide a method for feeding parts directly to assembly stations from the original shipping container. It eliminates re-handling from shipping container to tote box or hopper.

The Charles Wm. Doepke Mfg. Co., Inc.
Circle No. 474

Engineering Advice

Counseling on principles and techniques in physical distribution. Everything you must know to insure efficiency in the control, storage and movement of materials.

Drake, Startzman, Sheahan & Barclay
Circle No. 475

For the "Ideal" Package

Craveneer, a product consisting of a wood veneer core with kraft paper laminated to both surfaces. Said to make the ideal package because of its high puncture resistance, because it can be die cut, and because continuous sheets fold to form solid packages.

Elberta Crate & Box Company
Circle No. 476

Powered Stacker



A 1000-pound capacity lifter available with forks or platform. It is self-propelled, and is said to be ideal where floor conditions prevent heavier trucks.

Economy Engineering Company
Circle No. 477

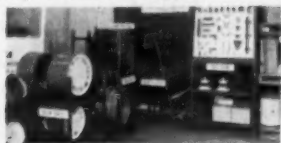
Caterpillar-Type Rollers

Express Rollers are caterpillar type roller units, with turning attachments, for moving extra-heavy machinery and other loads up to 150 tons.

Express Roller Div., Industrial East Co.

Circle No. 478

Easily-Assembled Racks



Said to be the quick solution to material handling and storage problems, these racks and shelving are easily assembled. The racks are made of steel channel framing, both in standard sizes and to specification.

Elcen Metal Products Company
Circle No. 479

Loader Equipment



Loader equipment which features load-locking and load-supporting characteristics for use in rail cars. It is claimed the equipment: earns greater revenue for the carrier; increases car load capacity; and affords the shipper added assurance that his merchandise will arrive free of damage.

Evans Products Company
Circle No. 480

Dip-Tank Magnet

The magnetic "Octopus", a permanent magnetic tool for retrieving and moving ferrous material from tanks of corrosive or hot liquids. Fully encased magnetic tubes snap up and hold metal parts, fine iron particles, etc., as the device is inserted into dip tanks, etc.

Eriez Mfg. Co.
Circle No. 481

Fork Trucks in Many Capacities



The fork truck illustrated, model F. 2-W, comes in capacities of 2000, 3000, and 4000 lbs. Others range to 20,000 lbs. Speeds to 25 m.p.h., both forward and reverse.

Erickson Power Lift Trucks, Inc.
Circle No. 482

One-Man Bridge Ramp

Heavy-duty ramp to fit any box car door. It is capable of holding loads weighing up to 15,000 pounds. Outstanding features include: a new, im-

proved lift handle, (engaged by forks); and a floating arm locking device.

Elizabeth Iron Works, Inc.
Circle No. 483

Mine Locomotive



A new line of mine locomotives called the Plymouth Mine-O-Motive is offered in sizes from 5 to 10 tons. Series includes a "Permissible" model tested and approved by the U. S. Bureau of Mines under Schedule No. 22 for underground operation in coal mines.

The Fate-Root-Heath Company
Circle No. 484

Portable Bag Closer



Portable bag closer which weighs 10½ pounds, including motor, for closing filled textile and paper bags. Closes average 100-pound bag in less than 6 seconds, requiring no installation, supports or plant space.

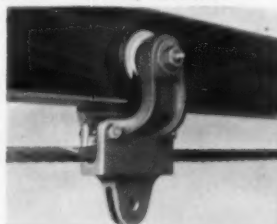
Dave Fischbein Company
Circle No. 485

Multi-Purpose Grease

The 630 AA multi-purpose grease can be used for all greasing applications. It is one of a complete line of lubricants shown by this company.

Fiske Bros. Refining Co.,
Lubriplate Division
Circle No. 486

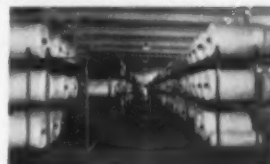
One-Piece Trolley Bracket



A one-piece trolley bracket incorporating a locking device, known as a Flex-Lock, to hold the terminals of the segmented cable in place. Built in three sizes to accommodate most industrial requirements, the bracket is said to give great strength with low weight.

Flex-I-Line Conveyor Corp.
Circle No. 487

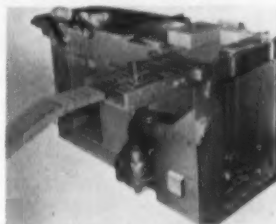
Readjustable Racking



Utilizing square tubing and patented locking devices, assembly of racks is accomplished without tools or fasteners. Readjustment and re-assembly are quick and easy. Erection time said to be reduced by some 70 percent.

Flexa Steel Products, Inc.
Circle No. 488

Automatic Pallet Loader



The "Lock-Load" palletizer produces pallet loads of cases in interlocking patterns automatically. Up to 36 cases per min., onto wood or paper pallets.

Food Machinery and Chemical Corp.
Circle No. 489

Air Activated Conveyor



The Fuller Airslide conveyor is a low pressure air-activated gravity conveyor for handling dry pulverized materials. Speeds may vary from 300 to 8000 cubic feet of material per hour.

Fuller Co.
Circle No. 490

Longer-Life Engine

The Ford 317 Model JB Power Unit is a V-8 engine with 317 cubic-inch displacement and a compression ratio of 7.2 to 1. It develops 147 horsepower at 2800 rpm and a maximum torque of 289 foot pounds. It has cobalt chrome-faced exhaust valves or longer life.

Ford Motor Co.,
Industrial Engine Department
Circle No. 491

Hydraulic Tail-Gate



A new model Car Wood tail gate features powered movements throughout an opening, lowering, lifting and

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closing cycle. Only one double-acting cylinder powers all movements.

Gar Wood Industries, Inc.
Circle No. 492

Hydraulic Packing

Garlock Chevron packing for reciprocating rods can be had in split or solid rings. Said to be suitable for highest pressures and will handle a wide variety of fluids. Available in any size.

The Garlock Packing Co.
Circle No. 493

Pallet Boxes and Bins

Fully reusable pallet boxes, made without nails, have outside cleats, hog-head loop closure, simplified 4-way entry and plywood panels. Removable openings make them pallet bins.

General Box Company
Circle No. 494

Strapping System

A completely automatic strapping system for large volume packaging. It straps varying sizes without adjustment, and features selective reset tensioning for bands from $\frac{1}{8}$ to $\frac{3}{4}$ inch.

General Strapping Corp.
Circle No. 495

Automatic Strapping Machine

With the electrically controlled steel strapping machine, " #2700 Autobinder", touch of a lever actuates automatic strap tension, joint sealing and cutting of unused strapping. Conveyor roller height is 31 in., package opening 20½ wide, 22½ in. high.

A. J. Gerrard & Company
Circle No. 496

Lightweight Steel Pallets

Pallets made of formed steel, yet are lightweight. Frame is made of 16 gauge steel, while corrugated top is 26 gauge steel. The tempered steel has an 80,000 psi yield point, and pallets have capacity of about 3000 pounds.

Granco Steel Products
Circle No. 497

Automatic Imprinting Machine

A machine for automatically imprinting identification data and code dates on one to five sides of packages of every size. It permits package simplification, with one-minute changeover, and prints any surface with accurate register.

Adolph Gottscho, Inc.
Circle No. 498

"Automation" Belt



"Automation" belt is made of Koro-seal, said to have excellent resistance to abrasion, oils, grease and most acids.

Because of the exceptionally smooth, low-friction surface of the belt, boxes may stop on the belt for loading and stamping while belt continues to move.

The B. F. Goodrich Company
Circle No. 499

Cable Troughs

A system of cable and tube raceways which are engineered for uniform design and easy installation. This system offers a simple solution to design problems of change of direction or elevation with a complete set of standard fittings.

The Globe Company
Circle No. 500

Hydraulic Tailgate



A hydraulic tailgate said to lower hauling costs and speed delivery time. Features one-man operation, and one control lever handles all raising and lowering operations, including power closing of the tailgate. Fits all trucks.

The Heil Company
Circle No. 501

Triple-Fast Palletizing

With the Greer semi-automatic palletizer plus the optional pallet dispenser, one man can triple palletizing speed, it is claimed. The machine adjusts easily to changing patterns and loading rates. It handles loads to 2,500 pounds and pallet sizes from 32" x 32" to 48" x 48".

J. W. Greer Co.
Circle No. 502

Small-Parts Conveyor



The Hapman "Pan-Link" conveyor was designed especially for economical and safe handling of stampings, forgings, all types of castings and small parts. Also conveys and elevates all kinds of metal scraps including types that are usually difficult to handle. Made for both light and heavy duty applications.

Hapman Conveyors, Inc.
Circle No. 503

Adjustable Dock



A new 20,000 lb. capacity truck dock with spring-action counterweight is 6 ft. wide, 5 ft. long, has easy side-to-side adjustment of 10 inches. Equipped with new "Hercoflex" rubber dock bumpers.

Karl A. Herman Company
Circle No. 504

Ready-Made Layout Models

Over 350 models of three-dimensional scale models of production and handling equipment are available to help make layout planning quicker and easier. You can also get complete Temprint materials made to order.

F. Ward Harman Associates
Circle No. 505

Thousand Pound Truck Crane

The "Hoist-O-Matic Model 1000" truck crane operates from a truck battery, mounts anywhere on the truck bed. With one-man driver, push-button operation, it has a 6 ft. mast, 4 ft. boom, and swings 360 deg. It is equipped with a 50 ft. wire rope for skidding as well as hoisting.

Hoisters, Inc.
Circle No. 506

New Design in Tractor Shovels



Four-wheel-drive tractor shovels, with capacities of 1 and 1½ yards permit 40 deg. "break-out" at ground level. Pry-out action comes from breakout pads, on the ground, as leverage fulcrum. Under-slung boom-arms provide driver visibility and safety.

The Frank G. Hough Co.
Circle No. 507

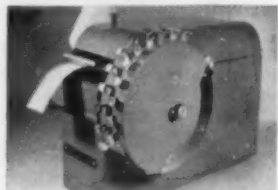
Scale for Big Jobs



The equivalent of fifty automobiles can be weighed at one time by the Hydroscale 200,000-pound crane scale. The scale body and all internal parts are machined from alloy steel forgings.

Hydroway Scales, Inc.
Circle No. 508

Push-Button Taper



All the advantages of electric push-button taping are said to be incorporated in the Ideal 200E Clip-A-Tape. It has "Red Cap" speed buttons for set-length production. All other keys are numbered clearly in inches. Dis-

penses any tape length up to 105 inches.
Ideal Stencil Machine Co.
Circle No. 509

Automatic Batch Weighing

A complete control system for automatic batch weighing, it is custom designed to special needs for automatic control to proportion liquid or granular ingredients by weight in mixing operations.

The Howe Scale Company
Circle No. 510

Maintenance Man's "Dream Tractor"

The Maintenance Supervisor for Hudson-House, Inc.'s wholesale grocery operation decided to design and build a tow-tractor which would need little maintenance and which would be easily repaired when necessary. The electric-hydraulic unit which he designed has proven so successful, in 4 years of service, that it has been put on the market. It uses automotive-type batteries, has built-in charger and requires only a 110-volt outlet for charging.

Hudson-House, Inc.
Tow-Bear Division
Circle No. 511

Chip Conveyor



The Delpack Jamesway Shovel-type chip and sludge conveyor is a custom-built product made in flights from six to 30-inches wide. It is capable of conveying bulk poundage at a rate of up to 100 tons per hour.

Industrial Filtration Co.
Circle No. 512

Seal-Less Strapping



Seal-less strapping which eliminates the cost of seals, time and cost of applying the seals, and provides a positive joint in which the overlapping strapping is mechanically interlocked. Tests from 78 to 86 percent of the strength of the strapping itself.

Inland Wire Products Co.
Circle No. 513

LP Conversion Assemblies

Conversion units to fit all types of industrial trucks for LP-Gas. Prefabricated assembly mounted on rigid plate

includes fitted water and LPG hose, filter, hydrostatic relief, solenoid, fuel interlock controls, vaporizer, regulator, carburetor, and cylinder bracket. Insurance accepted.

Industrial Gas Truck Eng. Co.
Circle No. 514

Flexible Crane and Monorail Electrification

Insul-8-Bar crane and monorail safety electrification can be furnished to meet every condition encountered in crane and monorail operation. Basic item is a conductor which is at once a structural member as well as a conductor. Insulation is applied to the outside of the structural member.

Insul-8-Corp.
Circle No. 515

Four-In-One Machine

The International-Drott Skid shovel is equipped with a 4-in-1 attachment that permits it to act as a skid-shovel, bull-clam, clamshell and bulldozer. The unit is all-hydraulic, including a "hydro-spring" safety feature to prevent breakage from shock.

International Harvester Co.
Circle No. 516

Vacuum Lifting Device



The Vac-U-Lift will reportedly lift almost anything. It works on the principle of vacuum displacement of air and will lift any weight, providing there is a flat surface large enough to accommodate the pad. Once vacuum is created, it cannot be broken accidentally, even when power is off.

International Staple & Machine Co.
Circle No. 517

Cable-Suspension Belt Idler



This cable-suspension belt idler is designed for maximum resistance to corrosion, abrasion, dust and dirt. It is suspended from two bearings which are located up out of the dirt zone and carries the belt on resilient, pressure-molded, neoprene discs. Discs are molded to a neoprene-sheathed, flexible steel cable which lets belt conform to load.

Joy Manufacturing Company
Circle No. 518

Portable Lifting Table

A 2000-pound capacity portable lifting unit with 28" x 28" table. Low position is at 24 inches, up position is at 47 inches. Weight of the table is 188 pounds. Available with either hand or pneumatic operation.

Joyce-Cridland Co.
Circle No. 519

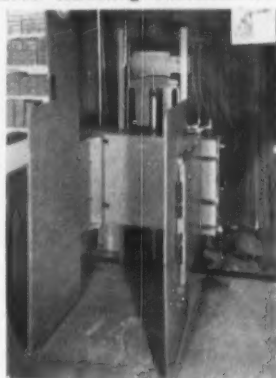
Low-Bed Electric Truck



Burden carrier which carries a payload of 2000 pounds (with industrial batteries) and 1500 pounds (with automotive batteries). Low bed (8 3/4-inches high) is said to mean fast, easy loading and minimum lifting.

Kalamazoo Mfg. Co.
Circle No. 520

Carton Handling Attachment



A double rubber-faced carton arm attachment for lift trucks. Each arm is 1 3/4-inch thick and full articulated. Capacity is rated at 2000 pounds on a standard clamp. Arm size and facings are available to suit material handled.

Iron Works, Inc.
Circle No. 521

Corrugated Steel Box

A container claimed to be 25% stronger than previous types because of unique construction of corrugations. Because of greater strength, lighter gauge steel can be used for a required capacity box. This has proven an important factor in reducing fork truck fatigue.

Don Kelsey Co.
Circle No. 522

Yard Lift Truck



The model Y-40 Truck-man yard-truck is designed to meet all types of conditions. It is available in narrow or wide axle with single or dual-drive wheels. Standard lifts up to 108-inches. It has four speeds forward and four reverse.

The Knickerbocker Co.
Circle No. 523

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Automatic Dock Board



Dock board with an automatic tilt adjuster to compensate for truck bed height differential. The truck itself supplies the leveling power, with no outside manual or power operation required.

Kelly Company, Inc.

Circle No. 524

Do-It-Yourself Conveyors

Install-your-own, pre-engineered conveyor systems. Line includes light-duty wheel gravity as well as medium and heavy-duty roller gravity conveyor sections in all standard widths. Center drive and take-up unit is available to attach to a roller gravity section to make a belt or live roll conveyor.

Lamson Corp.

Circle No. 525

Repairable Skids

"Re-Nu" top skid-platforms are said to eliminate the necessity for discarding skids which have worn or broken decks. Neither is it necessary to keep skids out of service for lengthy repairs. One board or an entire deck can be replaced simply by removing several countersunk head bolts.

The Lanham Skid Co.

Circle No. 526

Simplified Fork Truck Controls



Simplified lever controls on the 4000-lb. Model D-424 and 3000 lb. Model M-324 lift trucks mean higher efficiency and safer operation. Truck controls have been reduced to four levers and two pedals. (1) hoist-tilt control; (2) forward-reverse control. (3) high-low speed range; (4) parking brake. Pedals are a foot brake and the accelerator.

Lamson Mobilift Corp.

Circle No. 527

Chainless Overhead Conveyor



Landahl Chainless conveyor is constructed of steel connecting-rods moving along a three-section track. The specially designed trolley unit enables short radius turns—no take-up is required.

Load spacing is variable as desired.

Landahl Conveyor Co., a subsidiary of American Monorail Co.

Circle No. 528

Floor Brake

Presto Floor Brake is available for all types of Presto Hydraulic Lifts. Its patented construction gives maximum floor clearance in retracted position.

Lee Engineering, Inc.

Circle No. 529

Automatic Battery Charger

An automatic battery recharger which can be mounted directly on the battery case. Units are available in stripped-down form without case or ammeter and shaped or designed for a specific application. In addition to battery mounting, units may be floor or wall mounted.

LeMarche Manufacturing Co.

Circle No. 530

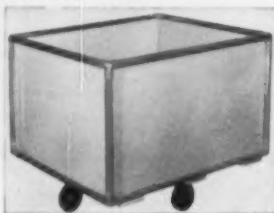
Self-Propelled 15-Ton Crane

With capacity of 15 tons at 10 ft. radius, the "UC-68 Utility Crane" is fully convertible to $\frac{3}{4}$ yd. shovel or trench hoe. With lattice type boom, it is convertible to drag-line, clamshell, pile driver, etc. Booms available to 50 ft. Removable outriggers both front and rear. Fully powered, hydraulically steered, has independent swing and travel. Retractable high gantry, raised and lowered by power.

Link-Belt Speeder Corp.

Circle No. 531

Plastic Box-Truck

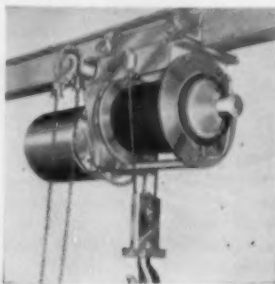


The Plexton Panel Box is made of glass reinforced polyester with a tubular frame connected with special 3-directional corner irons riveted in place. It is available with skids or casters and can be used in handling textiles and miscellaneous bulk products. Because of ease of assembly, individual panels can be easily removed for repair. Special feature is rivetless, seamless interior.

G. B. Lewis Co.

Circle No. 532

Electric Hoist



For loads of three to 30 tons and up.

Plain trolley and hand-gear hoists. Featured the LeTourneau all-weather, high torque, high slip motor with Le Tourneau gear reduction unit having helical gearing of matched construction. Also introduced the Le Tourneau gear motor for sale as separate power unit.

R. G. Le Tourneau, Inc.

Circle No. 533

Adjustable Car Ramp



A 20,000 lb. capacity, "Rite-Hite" adjustable ramp is 72 in. wide, will reach to 48 in. Said to be easy to install and operate, have low initial cost and minimum maintenance. Company builds special sizes to suit all requirements.

Loomis Machine Co.

Circle No. 534

Quick-Assembly Storage Racks

Lok-Rak storage racks redesigned for instant assembly without any special tools or devices. They are easily adjusted or extended for changing conditions.

Lok-Rak Co.

Circle No. 535

Magnesium Dock Board System

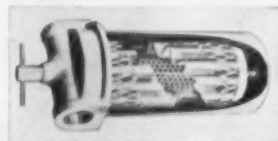


A new magnesium dock board loading system which has been specifically designed for permanent installation on concrete docks. Combining the strength and lightness of magnesium, they are easily raised or lowered by one man. No power operated devices or counterbalances are required.

Magline Inc.

Circle No. 536

Oil Filter



An easy-to-clean oil filter which features $2\frac{1}{2}$ times more active filtering area and less flow restriction. Marvel Synclinal design is incorporated in both the sump and line type units.

Marvel Engineering Company

Circle No. 537

Stencil Machine; Photo-electric Tape Control

A $\frac{1}{4}$ inch stencil cutter produces 8

lines of any length in .008 stencil board. Its "Hi-Line" table has grooved bearing lines for accurate, in-line cutting. The photo-electric, remote control, for production line packaging, operates tape machine when beam is interrupted by package on conveyor.

Marsh Stencil Machine Co.
Circle No. 538

Super-Sensitive Hook Scale

The Sensater hook scale is said to have great sensitivity and accuracy. It is a hydraulic scale with a 12-inch dial with dual range. It has 25% tare adjustment and a frictionless stroking diaphragm provides the super-sensitivity. Its tilting dial provides for easy reading.

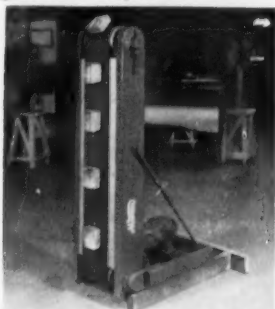
Martin-Decker Corp.
Circle No. 539

Long-Wearing Floor

A floor with great wear-resistance is made possible by using iron as the aggregate. Since iron is ductile, it "gives" under traffic, rather than being brittle.

The Master Builders Co.
Circle No. 540

Magnetic Conveyor



Magnetic conveyors, manufactured by The Homer Manufacturing Co., Inc., which, in one operation, both convey and elevate ferrous materials. When ferrous pieces enter the magnetic field of the conveyor, they are held securely to the belt, no matter how steep the angle.

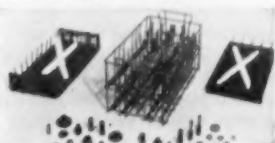
Mayer & Oswald, Inc.
Circle No. 541

Increased-Capacity Conveyor

Overhead conveyor has malleable iron links with a flexible built-in universal joint, said to offer two to three times more carrying capacity than conventional types of chain.

Michna Systems
Circle No. 542

Parts Carriers



The Mid-West Peg-type Carrier lends itself ideally to handling a multitude of diversified component parts. Parts can be de-greased or washed without transfer to another container.

Mid-West Wire Products Co., Inc.
Circle No. 543

Sealed Caster & Automatic Lock



Supplied in any size, "Real-Seal" casters will withstand immersion, steam cleaning, and air borne dust even when devoid of grease. A new truck lock automatically locks upon pad contact, at any flection of suspension system.

Modern Caster Co.
Circle No. 544

Fiberglass Tote Box



Fiberglass tote boxes "lighter than aluminum" and having extremely high impact strength. They require no maintenance (colors will not fade or chip and boxes will not bend out of shape).

Molded Fiberglass Tray Co.
Circle No. 545

Stand-Up Rider Truck



Economy is claimed for this stand-up rider-type straddle truck with a built-in battery charger and directional indicator. Also featured is the interchangeability of pallet sizes.

John Morrell Manufacturing Co.
Circle No. 546

Redesigned Battery Charger



Redesigned battery charger which makes component parts more easily accessible. Capacity has been increased from 5 kw to 6 kw, and unit includes cycle control for charging two batteries

at the same time.

Motor Generator Corporation
Circle No. 547

Industrial Walkie-Talkie

The "Handie Micro-Talkie" is a transmitter with range about 2000 ft. Recommended for such uses as taking inventory and one-way messages. Used with any FM receiver or recorder. Pocket size, it weighs only 29 oz. Batteries good for 6 months of normal service. Ruggedly built to stand industrial abuse.

Motorola, Inc.
Circle No. 548

Economical Car Shaker



One man can normally complete an entire unloading operation with this car shaker which is hooked over the side of the car and clamped by a tension screw which hooks on the underframe of the car.

National Conveyor & Supply Company
Circle No. 549

Simple Structural Fittings



Nisco "Key-Lok" structural fittings are designed to provide an economical system of shelving, stock piling, guard rail construction, etc. Each socket head set screw is tightened by hand by means of a key. Result is a jamming action which prevents slippage.

National Industrial Supplies Co.
Circle No. 550

Portable Yard Ramp



Portable ramp designed for use where no dock facilities exist or existing facilities are congested. Hydraulically-operated wheels are located so that the ramp can be positioned by one man regardless of the height differential.

National Light Metals & Plastics Corp.
Circle No. 551

Truck With Self-Leveling Bottom

The Hercules three-wheel fibre-bodied floor truck features a self-leveling bottom. Material can be fed from the truck

ALONG THE AISLES

at a constant convenient work level.
*National Vulcanized Fibre Co.,
 Fibre Specialty Division.
 Circle No. 552*

Quality Control for Pallets

"Why grade-marked pallets?" was answered by members of the National Wooden Pallet Mfrs. Assn. It is claimed that a grade-marked pallet, (marked grade "A" or "AA") assures uniformly good pallets of good construction.
*National Wooden Pallet Mfrs. Assn.
 Circle No. 553*

Hardwood Pallets

A complete line of pallets made of moisture controlled hard wood which is said to best meet palletization requirements in all industries.
*National Pallet Corp.
 Circle No. 554*

Multi-Purpose Belt Conveyors



The "Cost-Cutter" is a 12-in. unit in aluminum, steel, or stainless steel construction, in lengths up to 40 feet. Electric or gasoline power. Portable or stationary, inclined or horizontal.
*New London Engineering Co.
 Circle No. 555*

Hydraulic Pump

A 2000 pound capacity, three to 11-gallon dual-vane hydraulic pump for mobile equipment. It operates continuously at 2000 PSI at speeds up to 2600 RPM for direct engine mounting.
*New York Air Brake Co.
 Circle No. 556*

Order-Picking Aid

Quik-Pik adjustable gravity storage and selection shelving is custom planned to meet individual needs. It permits concentration of maximum varieties in minimum linear distance. Automatic stock rotation is assured.
*North American Equip. Corp.
 Circle No. 557*

Power Cranes



A line of rubber and crawler mounted cranes with capacities ranging from 10 to 50 tons.
*Northwest Engineering Co.
 Circle No. 558*

96% Efficient Hoist

The Ohio Lite chain hoist is said to have 96% mechanical efficiency and to

be the lightest one-ton aluminum chain hoist made (weighs 33 pounds in the one-ton capacity). This adds to the portability of the hoist. It is available with Alcaloy chain, a non-magnetic, non-sparking type with the strength of steel.
*Ohio Hoist & Mfg. Co.
 Circle No. 559*

Knock-Down Shipping Containers



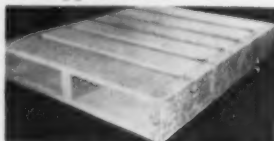
Paltier shipping containers may be constructed of all aluminum or a combination of aluminum and canvas bag (to reduce weight.) The containers may be knocked down and tiered for shipping or warehouse storage. Slip-on stacking hardware can be used.
*Paltier Corp.
 Circle No. 560*

Stacking Pallets



Made in any size to fit a customer's regular warehouse, "Tier-Racks" require no bolts, nuts or special hardware attachments. Frames simply slip onto a standard pallet and snap into place. X-frame design provides full corner-to-corner support, makes stacking easy for fork truck operator.
*J. R. Perkins Lumber Co.
 Circle No. 561*

Metal Capped Pallet



Stressing a metal cap over pallet ends is expected to increase effective life of pallets at least four times. It locks deckboards to runners even after fasteners have lost holding power.
*Pallet Sales Corp.
 Circle No. 562*

Lifting and Pulling Unit



Combining qualities of winches and

chains, the "Tirfor Griphoist" does all sorts of lifting and pulling jobs. Allows unlimited cable travel. Nominal power of 3,300 lbs. can be increased to 6 tons with blocks. Easy and safe to use.
*Princeton Griphoist, Inc.
 Circle No. 563*

Fast Loader



The Speed Swing Loader has 180° boom swing so that it can pick up in front and discharge on either side. It was designed to operate in congested areas. With four-wheel drive and four-wheel steer, oblique movement of the machine is possible.
*Pettibone Mulliken Corp.
 Circle No. 564*

High Capacity, Powered Wheelbarrow



Hauling $\frac{3}{4}$ ton on a chassis 64 in. long, 31 $\frac{1}{2}$ in. wide, a new powered wheelbarrow is designed for use on same type ramps, runways, or elevators normally used for hand carts. Positive controls allow inexperienced labor to operate unit safely and efficiently.
*Prime-Mover Company
 Circle No. 565*

"Poor-Man's Nailing Machine"

The Powers air-stapler with bottom fire trigger has been dubbed the "poor man's nailing machine." It is capable of driving staples up to and including 1 $\frac{1}{4}$ -inch in length made of 14 gauge wire. It will drive and countersink staples into oak or any other hard wood at a rate of three staples per second.
*Powers Wire Products Co., Inc.
 Circle No. 566*

General Handling Line

Complete line of hydraulic pallet trucks, rack trucks, storage racks and three-dimensional layout aids.
*Rack Engineering Co.
 Circle No. 567*

Compartmentizer for Rail Cars

Adjustable steel gates lock into place at roof, sides and floor of boxcar, dividing it into three compartments. Gates hang from trollies running length of car and remain vertical whether closed, partially or fully opened. There are no loose parts to remove or replace.
*Pullman-Standard Car Mfg. Co.
 Circle No. 568*

Low-Power Two-Way Radio

A new line of low-power industrial

radio, called "Carfone" Equipment. It is a complete line for all types of installations, wherever central dispatch control is required. Said to be compact, flexible in mounting and interchangeable between vehicles.

Radio Corp. of America
Circle No. 569

Industrial Sweeper

A sweeper which has been designed to fit the Model HA Payloader, and which can be attached or detached in 10 minutes. It has a 48-inch broom, is hydraulically controlled and is ideal for all types of industrial plants.

Ram Equipment Company
Circle No. 570

All-Steel Corner Guard

The Ran-Guard protects against costly accidents at load corners. Attractive Black and yellow stripes warn approach trucks of danger. When dollies, fork lifts or other vehicles scrape against the corner of the load the guard prevents damage to product.

Randolph Industrial Equipment Co.
Circle No. 571

Clamps for Steel Plate



Either horizontal or vertical handling of heavy plate is easy with safety lock clamps. They lock in open as well as closed position so hoist can be used to remove clamp safely. Capacities from 1 to 20 tons, with 5X safety factor.

J. C. Renfro & Sons, Inc.
Circle No. 572

All-Purpose Sling

An all purpose sling with mechanical splice which develops 100% rope strength with a steel core. A shorter splice section gives greater effective sling length.

John A. Roebeling's Sons Co.
Circle No. 573

Conveyor System



In medium duty capacity range, a new overhead conveyor designed for coordination with surface conveyors. Also exhibited—magnetic conveyors for handling ferrous metal parts and scrap. Space saving achieved through steep pitch of incline.

Rapids-Standard Company, Inc.
Circle No. 574

General-Purpose Hoist

An electric hoist said to be built for hard service, and yet sell at a modest price. Has a totally enclosed ball bear-

ing high-starting torque motor, designed especially for hoist duty. Controls are enclosed in a weatherproof box. Brake features a non-reversing clutch.

David Round and Son, Inc.
Circle No. 575

Truck Leveler



Varying heights of truck beds are no problem when you have a Rotary Truck Leveler. The hydraulically operated lift raises or lowers a truck or trailer to bring the bed level with the dock.

Rotary Lift Co.

Circle No. 576

Convertible Crane



A 6-ton power crane fully convertible to complete line of attachments. Has two-speed independent travel, power steering and hydraulic brakes. Also features all-vision cab.

Schild Bantam Company
Circle No. 577

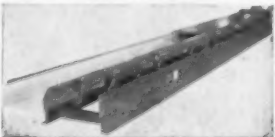
Weight Lift Control



Model DSR records distinctively the raising or lowering of a predetermined load. Minimums may be established, and the chart will show only those lifts of the minimum weight or greater. Busy and idle time also is indicated on the service recorder's chart.

The Service Recorder Company
Circle No. 578

Vibrating Conveyor



The Simplicity oscillating light-type vibrating conveyor can be installed with little special support because a mini-

mum of vibrations are transmitted to the building itself. Used in widely varying places, from foundries to instant coffee plants, the conveyors can be furnished for any type of product.

Simplicity Engineering Co.
Circle No. 579

Fibreboard Pallets

Lightweight, relatively inexpensive expendable fibreboard pallets formerly manufactured by Addison-Semmes Corporation. Now to be known as Signode Addison-Semmes Pallets.

Signode Steel Strapping Company
Circle No. 580

Top Clamps for Lifting-Roller



Adjustable clamps added to the "Rola-Lift" provide safe, stable handling of long narrow, and high crates. The lift is produced in capacities from 2,000 through 10,000 lbs., is used in pairs to jack load up, roll it on swivel casters.

Skarnes Engineering & Supply Co.
Circle No. 581

Wire Shipping Container



Two-ton capacity wire shipping container which folds to one-fifth size when not in use. Legs are deep throated to assure positive alignment and fast tying. The 4-leg construction permits entry from any side with any truck.

Springport Steel Products Co.
Circle No. 582

Hand-Made Pallets

Ozark Master Pallets are all hand-nailed to insure that each one receives personal inspection for any possible defects in the wood, bent nails, etc. Immediate delivery is now possible from Supreme's re-built home factory and from eight other strategically located branch factories.

Supreme Mfg. Co.
Circle No. 583

Fibre Trucks and Containers

A full line of fibre trucks, receptacles, tote boxes, etc. All units feature reinforced metal bindings. They are said to be durable, clean, lightweight, non-snagging and especially suitable for textiles and food.

Spaulding Fibre Co., Inc.
Circle No. 584

ALONG THE AISLES

Sectional Stacking Shelves



Stakbin's Sectional Stackshelves provide a flexible storage system of interchangeable shelving, racks and bins. Basic units serve both as storage and tote units.

Stakbin Corp.

Circle No. 585

Electronic Cop for Conveyors



The "Auto-Diverger" sorts or selects commodities on the basis of size or weight differentials or color sensitivity.

Standard Conveyor Company

Circle No. 586

Bolts and Screws

A complete line of bolts and screws of all sizes for all purposes, including both cut thread and rolled thread.

Sterling Bolt Co.

Circle No. 587

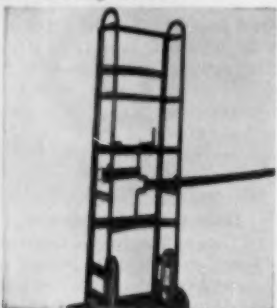
Wood Products

Manufacturers and suppliers of industrial wood products. Features packaged shipments of lumber which can be unloaded by one man with fork truck in less than one hour.

Sterling Lumber & Supply Co.

Circle No. 588

Stair-Climbing Truck



The model S2-S-T Escort Appliance Truck has a tubular steel frame, for strength, and roller-bearing crawler tread, for easier stair-climbing. Truck

may be rolled up and down stairs without lifting (only a rolling motion is needed). Capacity is 750 pounds.

Stevens Appliance Truck Co.

Circle No. 589

Electric Skid Strapping Tool

Electrically powered tightening insures uniform tensioning on each strap which is applied by a new Stanley electric skid magazine strapping tool. It is preset for proper tension before each job—feeds seals and cuts strap automatically.

*The Stanley Works,
Steel Strapping Division*

Circle No. 590

Pumps Almost Any Product

Alemite Versatol Pumps will handle any material which will flow. They move material over normal plant distances with high efficiency. Available with stainless steel components for use with food products, glues and adhesives.

*Steward-Warner Corp.,
Alemite Division*

Circle No. 591

Light-Duty Truck

The Multiton Excelsior platform truck is powered by a 2½ hp Briggs & Stratton engine which runs on gasoline or LP gas. Platforms on the truck range from 27 to 39 inches in width and 38 to 69 inches in length. They are designed for pick-up and personnel carrying. Low cost is important feature.

Stokvis Edera & Co., Inc.

Circle No. 592

Record-Keeping Communications



The Telautograph telecriber transmits handwritten messages over wire the instant they are written. Messages may be sent from a "Transceiver" to any number of receivers simultaneously. Messages may be reproduced on plain paper and/or on printed forms.

Tel Autograph Corp.

Circle No. 593

Rubber Doors

"Rubbair" Doors are lightweight and flexible. They are made of heavy-duty natural rubber, doubly reinforced with two-ply 15.4 ounce duck. Self-returning cam hinges on the doors assure easy opening and closing. They absorb shocks on trucks and permit rapid traffic flow.

Stik-Klip Co., Inc.

Circle No. 594

Sheet Steel Separators

Sheet steel separators manufactured by E. V. Nielsen, Inc. Tradenamed Basco, these units comprise permanent magnets that induce a magnetic field in stacked steel sheets, which tend to repel each other, causing the top sheets

to fan out with air space between them.

Storch Products Company

Circle No. 595

Remote Control Hydraulic Unit

A remote control center hole hydraulic unit for pulling or pressing gear or sleeves. Two-way pump is hand operated, has two speeds, automatic switch over—rapid rise to position ram plunger and low speed for power.

Templeton, Kenly & Co.

Circle No. 596

Floor Maintenance Machine

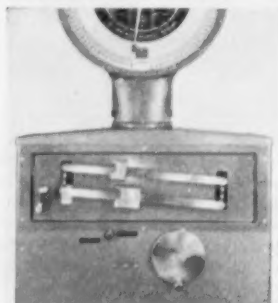


New type, 21-inch wide, self-propelled machine for high speed buffing, re waxing, polishing, or scrubbing. Vacuum equipped. Built-in wax bar automatically applies thin film of wax to floor.

G. H. Tennant Company

Circle No. 597

Electronic Micro-Filler



Electronic Micro-Filler which provides precision weighing of free flowing, granular materials. Unit is composed of a Speedweigh, with cut-off controls, and a relay cabinet. The controls consist of a switch under the weight platter to change flow rate from fast to slow.

Toledo Scale Company

Circle No. 598

Container System for Bulk Shipping



The "Tote System of Bulk Handling" now can employ a container car, which permits bulk shipments by rail without freight cost on container in either direction. Bins can be placed on and removed from special flat cars with standard material handling equipment.

Tote Systems, Inc.

Circle No. 599

Self-Propelled Crane

Model SP 254 W self-propelled power crane has a 30-foot gooseneck boom and capacity of 17½ tons. Features include: simultaneous hoist swing and travel, power load lowering, new E-Z operating controls, air power steering, air brakes, 6 x 4 carrier, 4 speeds both directions.

The Thew Shovel Company
Circle No. 600

Half-Yard, Short-Turning Loader



Capable of working in and out of box cars, through narrow aisles, the "TL-6 Tracto-Loader" has ½ yard bucket with 22 deg. tip-back at ground level, 50 deg. at 3 ft. carrying position. With 6000 lb. capacity, 33½ h.p., it turns in 6½ ft. radius. Can be fitted with lift forks or crane hook.

Tractomotive Corp.

Circle No. 601

Fully Adjustable Storage Racks



Metal framing that allows user to custom-build his own racks requires minimum effort to assemble. To produce a rack, user cuts sections to desired length, slides locking nut into position, fastens members together with a turn of a wrench. No drilling is required.

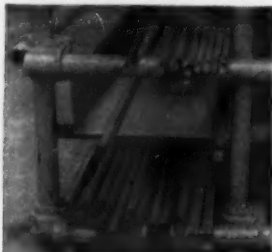
Unistrut Products Company
Circle No. 602

Job-Suited Trucks

UX3-X overhead conveyor truck, 31" wide by 55" long with 14-gauge sloping deck. Superstructure, 64-inches high, is made of ¾" x 16-gauge expanded metal. Equipped with resonite (plastic) roller bearing wheel casters.

Thomas Truck & Caster Co.
Circle No. 603

Universal Pipe Clamp



This clamp permits you to take advantage of any standard channel pipe (new or used) for construction of racks. The clamp is universal—it serves for

every connection on a rack made of a given size pipe. To install, just cut pipe to size, insert into clamp.

*Tube-Strut Division,
Tubular Structures Corp. of America*
Circle No. 604

Crane with "Built-In Lift"



Said to have plenty of strength to handle two-ton loads safely—its rated capacity—yet compact in size and occupies less floor space than other cranes of its capacity. Built-in tension boom has 4000 pounds capacity in the first position, 2000 pounds in the second position, and 1000 pounds in the third.

Uhrden, Incorporated

Circle No. 605

Truck-Mounted, 8-Ton Crane

A new ¾ yd., 8 ton capacity, truck mounted crane has straight, in-line (gasoline engine mounting, torque converter drive. Standard boom length is 25 ft. for capacity lift at 12 ft. radius. Maximum road speed 38 m.p.h. Cab allows 360 deg. horizontal vision.

Unit Crane & Shovel Corp.
Circle No. 606

Unit-Load Grapple

Manually operated lifting grapple which is designed to handle unit loads in a wide range of sizes and capacities. Unique construction makes it ideal for use in metal, plastic, rubber, lumber and textile industries, as well as industries which use these basic materials in the manufacture of other products.

The United States Equipment Co.
Circle No. 607

Strong, Flexible Slings

Coreless construction provides flexibility without impairing strength of Union Wire Rope's Tuffy Slings. It is claimed that the slings may be kinked without material damage to the fabric.

Union Wire Rope Corp.

Circle No. 608

Utility Hoist



A 2000 lb. capacity, hydraulically

operated hoist for truck, floor and machine mounting. Available with either hand- or motorized-pump; has self telescoping boom, 4-wheel floor truck, tubular steel construction. Swings 360 deg.

Unit Manufacturing Co.
Circle No. 609

Extra Heavy Duty Truck



A hand truck said to be designed and built to do many of the jobs of motorized units, at a fraction of the cost. With this general purpose truck, one man can handle 1000-pound loads of strip steel, machinery, heavy cartons, skids, etc.

U. S. Products, Inc.
Circle No. 610

Power Sweeper Without Bag



Model 60-5 power sweeper has new "Filter-Vac" dust control system in which dust bag has been replaced by a filter system in dirt hopper.

Hydraulic, automatic controls for dumping and power flexing. Hopper capacity of 10.5 cu. ft. provides more hours of sweeping per dump.

Wayne Manufacturing Co.
Circle No. 611

Stair Climbing Hand Truck



Six models—from small tank cart to welding truck to large barrel unit—of stair climbing truck use a special ratchet mechanism which rolls loads up stairs, step by step, as operator pulls a cable drive. Brakes control descent.

Valley Craft Products, Inc.
Circle No. 612

Strapping Container, Dispenser; Wire Mesh Conveyor Belting

Tradename Payoffpak, a combined

ALONG THE AISLES

shipping and dispensing container for easier and more economical handling and warehousing. Facilitates the use of round steel strapping and mill coils in the finer gauges. Also a complete line of wire mesh conveyor processing belts, including flat wire belts, spiral belts and Flexgrid, for curves.

United States Steel Corp.
Circle No. 613

Expanded Metal Baskets



Used in degreasing operations and for bulk handling of small parts. Competitive in price to tote pans. Maximum size of openings is $\frac{1}{4}$ -inch. Size of basket is 18" x 9" x 5". Finish is bright, corrosion-resistant zinc.

Wall Wire Products Co.
Circle No. 614

Platforms, Docks and Bridges

Hydraulically operated platforms, cross-over bridges and tilting docks to speed plant handling. Bridges, to provide accessibility between sections of buildings separated by rail tracks, in capacities to 80,000 lbs. Docks, for handling to and from trucks at various heights, have capacities to 20,000 lbs.

The Wayne Pump Co.
Circle No. 615

Stencil Addressing Device



With cartons pre-printed with "ship-to" label frame, they can be addressed, with Web-O-Print hand-stencil printing device, 30 to 40 per minute. Stencils furnished for typing as by-product of other paper work, or on marginal punched carrier sheet for use with automatic equipment.

Weber Label and Marking Systems
Circle No. 616

Small Industrial Diesel Engines

Three models of diesel motors designed for wide variety of industrial uses. Model 195 DLC, 6 cylinder, 4 x 4, 302 cu. in. displacement, has peak h.p. of 90-95 at 2400 r.p.m. Solid injection using Bosch distribution type fuel pump. Model 180 DLC, 4 cylinder, $3\frac{1}{2}$ x 3- $\frac{3}{4}$, 144 cu. in. displacement, has peak h.p. of 35-37 at 2000 r.p.m. Model 135 DK, 6 cylinder, $4\frac{1}{2}$ x 5, 426 cu. in. displacement,

has peak h.p. of 105 at 1800 r.p.m.
Waukesha Motor Co.

Circle No. 617

Truck-Servicing Aid



Wayne two-post free-wheel lifts hold trucks with wheelbases up to 12 feet. They may be furnished with equalizers to maintain equal lifting height on each post.

Wayne Pump Co.
Circle No. 618

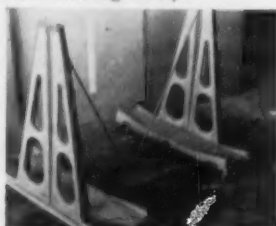
Baggage Truck



A 2500-pound capacity baggage truck which is equipped with a canvas cover. Wheels lock when tongue is raised. Truck can be picked up with fork truck.

The Wellington Machine Company.
Circle No. 619

Sheet Handling Dolly



A sheet handling dolly constructed of welded steel stampings, with a structural capacity of 12,000 pounds. It provides full length support for sheet materials, and will handle sheets up to 60 inches wide.

Western Manufacturing Co., Inc.
Circle No. 620

Motors and Accessories

A complete line of motors and accessories for driving material handling equipment was featured in the Westinghouse exhibit. An outstanding device was the type SA self-adjusting brake. It never requires adjustment for lining wear, and operates perfectly throughout the life of the lining.

Westinghouse Electric Corp.
Circle No. 621

Heavy-Duty Casters

The new 500 Series of Wil-Mat heavy

duty casters has greater carrying capacity because of annular thrust-type ball bearings used in the wheels. The casters are available with semi-steel, plastic, and replaceable rubber tire wheels.

Wil-Mat Corp.

Circle No. 622

Telescopic Belt Conveyors



Portable units of two to four powered belt conveyors, each with its own drive. Conveyor units telescope on roller bearings for easy operation in and out of trucks and other vehicles.

The Wilkie Co.

Circle No. 623

Wirebound Boxes

Wirebound boxes and crates which are custom-designed for any type of industrial product.

Wirebound Box Manufacturers Assoc.
Circle No. 624

Industrial Motors

A line of heavy-duty engines from 3 to 36 h.p.—designed for applications in such equipment as industrial trucks, sweepers, and bulk handlers—has Timken tapered roller bearings on both sides of crankshaft, Babbitted connecting rods, and outside magneto with impulse coupling.

Wisconsin Motor Corp.
Circle No. 625

Appliance Dollies



Two dollies designed for easy handling of awkward appliance loads. One, of half-ton capacity, intended for such units as freezers and large water tanks, has 2 straps and ratchets and 4 wheels for horizontal rolling. The other (shown) has a frame 47 in. high to eliminate need to detach and re-attach strap fastener when loading appliance into station wagons and panel trucks.

Yeats Appliance Dolly Sales Co.
Circle No. 626

Pneumatic Conveying System

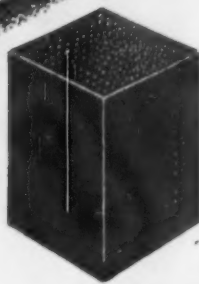
The "TransVair" closed circuit pneumatic conveying system handles very fine materials—such as activated carbon and soda ash—without dust loss or moisture pick-up from atmosphere. Demonstration model operating with 2 h.p. turbine fan will handle 1000 lbs. per hr., through 2 in. diameter conveying and return lines, for distance of approximately 40 ft. Rotary air lock valve is used for feeding material into air stream; same valve used to discharge material into bottom TransVair Cyclone separator.

The Young Machinery Co.
Circle No. 627

PACKAGING AND SHIPPING SECTION

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An Easy Index to This Month's Advertisers

Are you looking for a particular type of packaging and shipping equipment? Listed below are advertisers according to type of product they are advertising in this issue. We have attempted to make your job a little easier by listing them as often as possible. To use this index, find the type

of product in which you are interested . . . turn to the advertisers listed under that product . . . circle the correct numbers on the reader service card, mail it, and you'll get complete information in a jiffy.

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World's Strongest Tape?

Even "Hard-Boiled" Haggerty can't break it!



"SCOTCH" Brand Filament Tape —super-strong, amazingly shock-resistant. Thousands of filaments imbedded in the pressure-sensitive adhesive give up to 500 lbs. tensile strength per inch of tape width. Exclusive "mirror-surface" adhesive gives 100% tape contact—*puts all the tape strength to work*. We'll be glad to send complete information on how it can save money and solve problems for you. Just write on your letterhead to Dept. FL-65.

FILAMENT TAPE

...one of more than

300 Pressure-Sensitive Tapes

for industry trademarked...

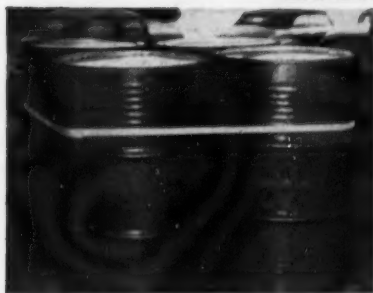
Reg. U.S. Pat. Off.

SCOTCH

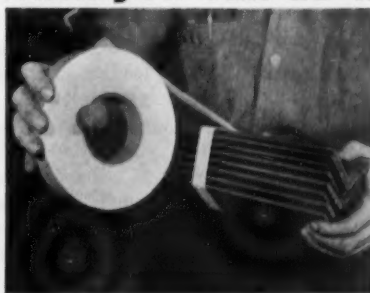
BRAND



Look what you can do with it!



UNITIZE freight shipments to prevent shifting and tipping. Drums shown above average 500 lbs. weight; are securely held by bands of "SCOTCH" Brand Filament Tape 2" wide.



BUNDLE irregularly shaped and hard-to-hold objects with quick wraps of "SCOTCH" Brand Filament Tape. "Mirror-surface" adhesive sticks at a touch... holds securely.



REINFORCE heavy cartons, strengthen score lines with bands of "SCOTCH" Brand Filament Tape. Tape won't cut into carton; is safely applied with bare hands.

The term "SCOTCH" is a registered trademark of Minnesota Mining and Manufacturing Co., St. Paul 6, Minn.
Export Sales Office: 99 Park Ave., New York 16, N.Y. In Canada: P.O. Box 757, London, Ontario.

Circle No. 89 on Reader Service Card for more information





SOME FACTORS TO CONSIDER WHEN . . .

Preparing Shipments for

As air freight grows in importance as a method of transporting materials, it becomes increasingly important that packaging men know about the special problems which are brought about and that they know how to prepare to meet them.

In many respects, the problems in packaging for shipment by air freight are the same as those in packaging for rail or truck transportation. Packages are subject to the same types of rough handling during loading and unloading operations; vibration damage can occur in the air as well as on the ground; inclement weather is a problem at air terminals, just as at loading points of other types of transportation.

A list of "Do's" for preparation of packages specifically for air freight would include the following:

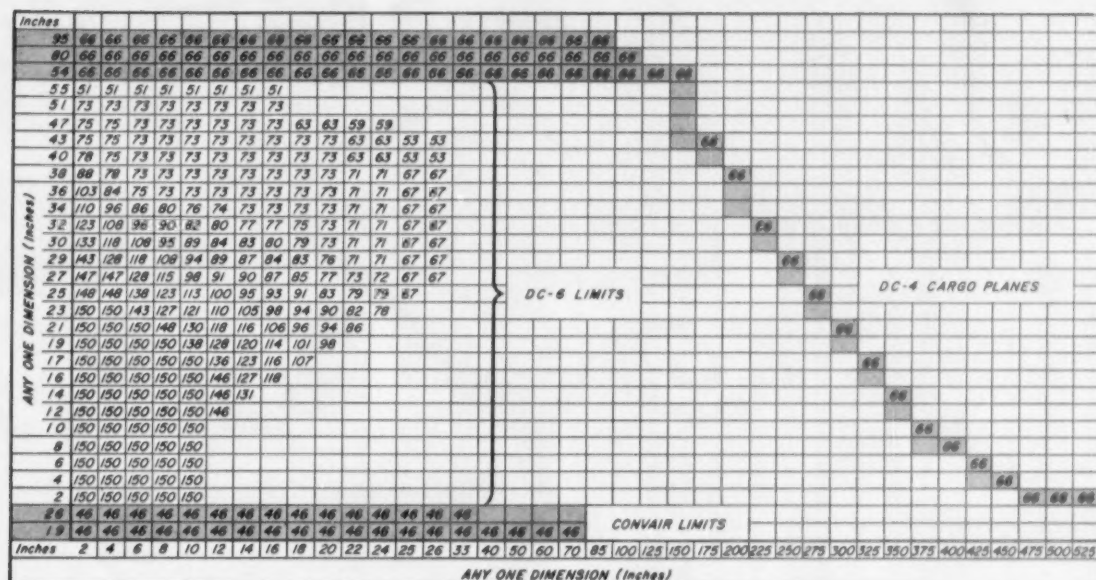
1. Take into consideration the weight distribution problem—

In general, airlines adhere to the following floor loading capacities: 180 lb per square foot for cargo planes; 100 lb per square foot for combination passenger-cargo flights. Thus, small items of great weight might have to be placed into an "oversize" container to provide proper weight distribution. A good example would be a casting which weighs 800 pounds and which has a four square foot bottom area. To distribute weight properly, it would be necessary to extend the base on each side by use of skids.

2. Take into consideration the type of plane which will be carrying your shipment.

Different planes have different limitations as to size of packages which they can accommodate.

CARGO PLANE LOADING CHART



TO DETERMINE if your shipment will fit aboard a specific air craft: (1) Ascertain the type of plane serving the originating and destination airports; (2) Obtain dimensions of piece—length, width and depth; (3) Use the sections of the size-chart applying to the

airfreighter that will be utilized; (4) If the third dimension of the shipment is not greater than the figure shown at the intersection of the first and second dimension columns, your shipment can be accommodated on the airplane selected.

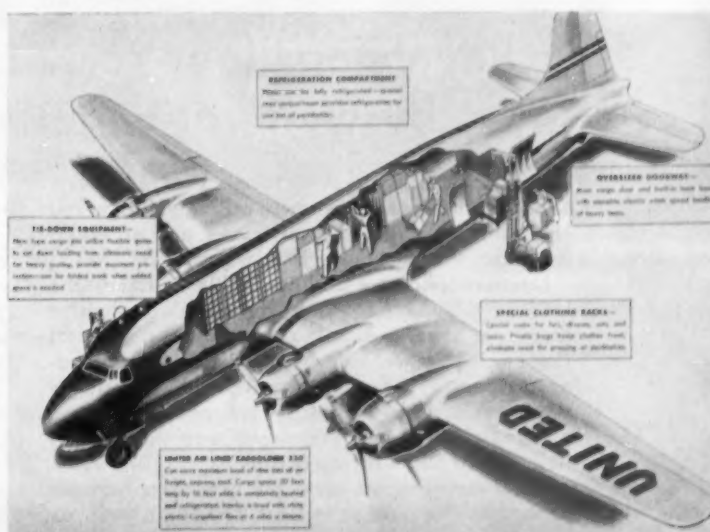
Chart, courtesy American Airlines

Air Freight

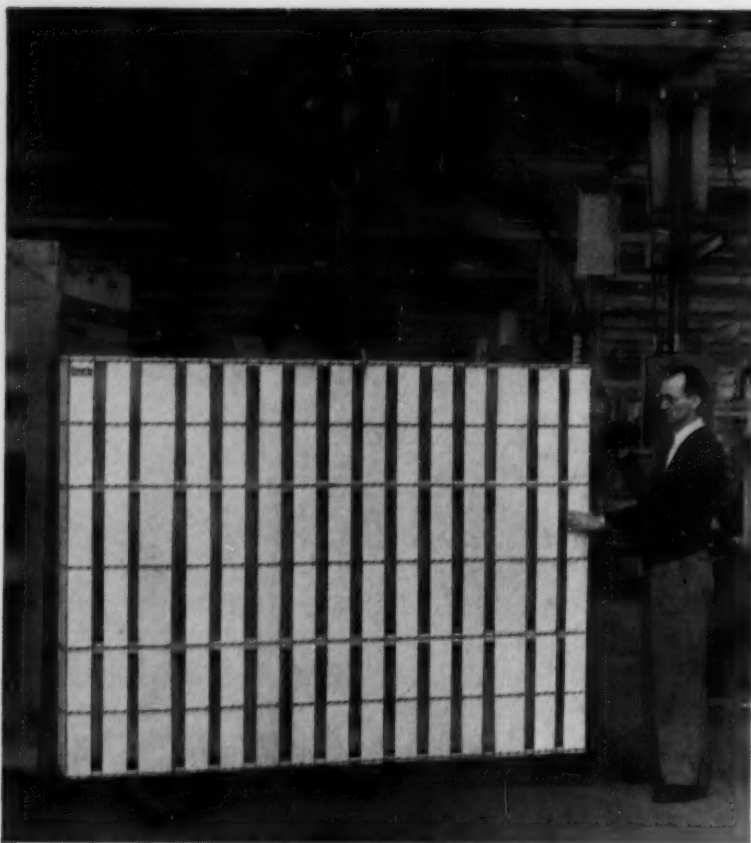
Plane limitations become particularly important when prompt delivery is vital. Take, for example, the experience of a manufacturer of finger-nail polish bottle caps. His plant is located in Omaha, Nebraska and he makes daily shipments to a bottling plant in New York. It is imperative that the caps arrive daily to keep production lines working on schedule.

Formerly, caps were shipped in 300-pound drums—one drum per day. The drum was within the load capacity of one flight a day between Omaha and New York. Sometimes, however, that plane would arrive in Omaha, from the west coast, with most of its cargo space filled. Although there might be an accumulation of small spaces available for additional cargo, there might not be a space large enough for a

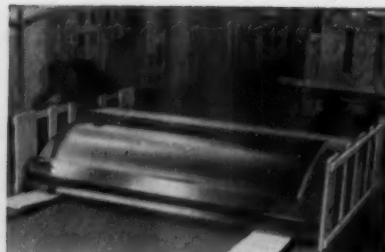
(Continued on page 134)



LOADING FACILITIES and type of aircraft must be considered when making up packages for air freight. Drawing, above, illustrates latest in facilities for handling freight. Doors and bays on the plane are big enough for large units. On opposite page is a plane which must be loaded through a small hatch. Obviously, maximum size of packages is greatly limited.



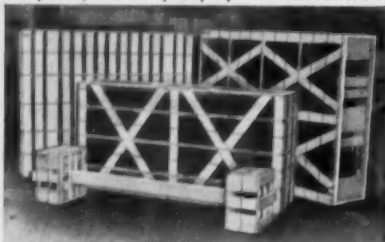
One of four General Wirebounds, this one, containing two 100-pound glazed door wings, is ready for shipment from the Evansville, Indiana, plant of International Steel, largest revolving door maker.



Here are curved enclosure walls. End pieces bolt on, prevent shifting in transit.



Wirebound mat is laid out on floor, wrapped around end pieces, secured quickly by wire rock fasteners.



Four crates total 1,044 pounds—396 pounds less than before, take only half the time to pack.

Revolving door costs turned sharply down by General-Engineered Wirebounds

Shipping a revolving door means packing heavy, costly precision parts—a round ceiling piece, curved enclosing wall, glazed door wings, and an eight-foot shaft with large bearings at each end.

International Steel Co., Evansville, Indiana—the leading manufacturer of revolving doors—ships many per year, is keenly cost conscious. General Box engineers, working with International's Manager of Shipping, recently came up with wirebounds that cut shipping weight by 396 pounds and cut packing time in half, compared with the custom-built nailed crates formerly used.

Total savings from use of the new containers are expected to amount to at least \$10,000 a year. As

International's management is well aware, it would take a lot of sales to boost profits that much.

General has the testing facilities and the experience to help your company make this kind of progress, too. And it costs nothing to find out what the possibilities are. Just let us know where you are and what you ship. We'll send a man. And ask for your free copy of illustrated booklet, "The General Box."

Factories: Cincinnati; Denville, N. J.; East St. Louis; Detroit; Kansas City; Louisville; Milwaukee; Sheboygan; Winchendon, Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston.

Engineered Containers for Every Shipping Need

• Wirebound Crates and Boxes • Generalift Pallet Boxes • Corrugated Fiber Boxes • Cleated Corrugated and Watkins-Type Boxes • Stitched Panel Crates • All-bound Boxes

General Box

184. Miner Street, Des Plaines, Ill.



Circle No. 56 on Reader Service Card for more information

New Amendment to Rule 41
permits two-strip sealing of
slotted and double-wall boxes.



Why only **one** man
in this picture?

SISALKRAFT TAPE HAS CUT SEALING LABOR BY TWO/THIRDS!

Now railroads approve the use of 2 strips of reinforced tape under Rule 41. You can now get the savings that result from this modern, fast way to seal . . . with 2 strips instead of 6. It's Center Seam Sealing made possible by rugged Sisalkraft Sealing Tape. See your paper merchant or write us for complete information.

SISALKRAFT

Sealing Tape

*Glass-
Reinforced*

American Sisalkraft Corporation, Attleboro, Mass.
Makers of base stock for the Gummed Paper Industry

Circle No. 6 on Reader Service Card for more information



Double-Duty Containers . . .

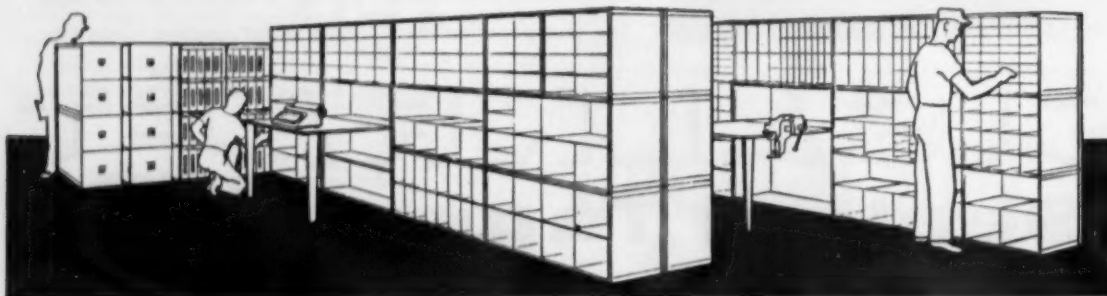
Designed for the Air Age

MODULAR containers, used by the U. S. Air Force, contain collapsible partitions to permit use as storage racks, etc. at destination. When collapsed, partitions occupy minimum space in container.



EASIER HANDLING is one of the biggest advantages of the new method. At left, on cargo plane's loading elevator, is typical assortment of Air Force material. At right is load composed of the new modular containers stacked and strapped together as a single unit.

FIELD USE of containers, after they have arrived at destination, is illustrated in sketch below. They are readily converted into storage units, filing cabinets, bins, complete stockrooms, field desks, etc.



A UNIQUE system of reusable modular containers with secondary functions is resulting in big savings for the United States Air Force. Although the concept was developed specifically for the Air Force, it suggests applications for commercial air shipping as well.

The containers are built in five different sizes: 21" x 21" x 14"; 21" x 21" x 28"; 21" x 42" x 28"; 42" x 21" x 12"; and 42" x 42" x 14". The basic modular control dimensions are 21" x 42" laterally and 14" and 28" vertically. These control dimensions allow a multitude of different combinations of individual containers and create a palletized unit load 42" x 42" which is keyed to the present requirements of anticipated carriers, both ground and air. As many as 20 individual containers can be combined into a unit load.

One of the requirements established for the container was that it must be durable and lend itself to economical mass production. Designer of the container, Becker & Becker Associates, selected a new method of fabrication. It uses specially designed aluminum extrusions which, in a single crimping operation, form the container's framework as well as hold the panels rigidly.

Panels are of sandwich construction, consisting of

(Continued on page 146)

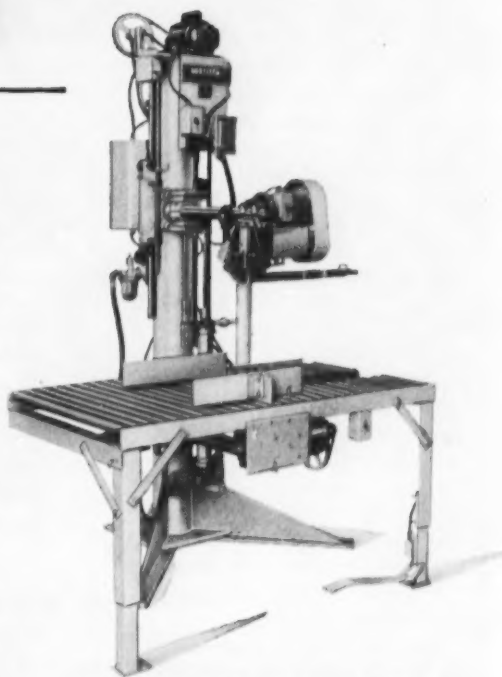
New BOSTITCH® BOXLOK* Seals

Your Containers Faster, More Securely



STAPLES TOPS AND BOTTOMS IN ONE PASS

- Tightly seals top and bottom flaps of regular slotted and overlapped containers . . . with wide-crown staples of .090 x .040 wire . . . requiring fewer staples per box . . . driven and clinched from the outside.
- Tops and bottoms stapled simultaneously—or tops only, if desired—at rate of over 100 stapling strokes per minute.
- Cartons automatically centered to line up staples.
- Staples automatically driven as head lowers and contacts box.
- Cartons of varying widths, heights and lengths can be stapled without adjustment.
- Built to same rugged standards as heaviest Bostitch box stitching equipment.
- Wearing parts easily accessible for quick replacement. Little service required.
- Meets requirement of parcel post, freight, overseas shipments.



BOSTITCH BOXLOK TOP AND BOTTOM STAPLER
Model D12 for use in conveyor lines. Other models for smaller production requirements.

Fasten it better and faster with

BOSTITCH®
STAPLERS AND STAPLES

*Exclusive Bostitch Trade Mark

For specifications and other information, send coupon below

BOSTITCH, Inc., 706 Mechanic St., Westerly, R. I.
Please send descriptive folder on new Bostitch Boxlok.

Name _____
Business _____
Address _____
City _____ State _____

Air Freight too Costly?

Here's how it can be used to
CUT distribution expense . . .



Can the cost of distribution—estimated at from 50 to 60 percent of the consumer's dollar—be substantially reduced by use of higher cost air transportation—with a marked improvement in service to customers, a decrease in cost of distribution and an increase in net profit of the manufacturer?

The answer is an emphatic "Yes."

Clarification of this startling assertion is provided by study of operations of a tool steel and carbide bit manufacturer in the Middle Atlantic States area. He has a modest number of warehouses in strategic locations where he stores substantial inventories not only of bar steel, but of carbide bits and other carbide cutting tools. The pressure of industrial migration to new and rapidly-growing producing areas during the last decade has necessitated studies leading to the possible purchase or lease of additional warehouses, in order to meet sales competition.

In connection with these studies, this manufacturer learned of some new low-cost air transportation services which might offer a way to reduce product inventory by a substantial amount, and at the same time provide swift, dependable delivery to customers in every locale at a possible substantial saving in cost of distribution.

Upon analysis, it appeared that the line of carbide bits and other cutting tools, representing a major portion of capital tied up in inventory, might profitably be warehoused centrally, even though the other lines of high speed and tool and die steels and special alloys were continued in inventory at present and additional warehouses.

This company computes the cost of carrying inventory and the cost of warehousing at only 11% of net sales. While this figure admittedly is far too low—"We know we're kidding ourselves but you can't allocate the general administrative costs to carrying and handling charges without scaring yourself to death"—the fact remains that, as to this manufacturer's line of carbide tools, immediate economies resulting in a

higher net profit appeared possible, if cutting tool lines were carried at one central point and all shipments to customers located more than an overnight truck-haul away were forwarded by air at the manufacturer's expense. It should be stated that orders for carbide bits range in shipping weight from several ounces to a hundred pounds or more.

The arithmetic of this interesting development is:

Average selling price per pound	\$14.00
Cost of inventory and warehousing (11%) per pound	1.54
Average per pound cost of premium air transportation (1000 miles average haul), less surface transportation charged ⁽¹⁾	0.34
Net increase in profit per pound	\$ 1.20

It is quite true that the indicated "profit" may not be saved entirely. The actual savings will be: (a) the net reduction in cost of carrying inventory at a number of warehouses, offset by a larger (but lower in grand total) inventory carrying charge at central warehouses; (b) reduction in warehouse and handling costs at warehouses in the field, offset by a slightly larger labor force at the central point; and (c) elimination of outbound transportation charges for carbide tool and bit inventory to outlying warehouses. Moreover, this company's indicated total cost of 11% for carrying and warehousing inventory appears much too low.

Under these circumstances, alert management apparently has uncovered a "gold mine" of profit possibility, not frequently available to the average corporation, by reason of the high per pound value of this

By Leonard G. Hunt
vice president,
Emery Air Freight Corp.

(1) For purpose of analysis this average is based on a consolidated air parcel service, with an assumed aggregate weight at break-bulk delivery points of 100 lbs., consisting of ten orders at ten pounds each. The per pound cost declines rapidly as aggregate weight increases.

Cuts $\frac{2}{3}$ from taping time!

Bi-Di Tape

(bi-directionally reinforced)

**Center Seam Sealing
needs only 2 strips!**

No end seals!

No mitering!

*This bi-directionally reinforced tape
is gummed to stick*

You really slash taping costs when you seal only center seams and use Bi-Di Tape. Bi-Di reinforced tape sticks *quick and sure*. No time lost rubbing down again and again.

Bi-Di's gumming reaches full tack in an instant, grabs with a bulldog grip that won't let go. It's a special blend of the finest animal glues, formulated in our own laboratory, coated in our own plant.

Your shipments get the full strength reinforcement and impact resistance they need when you seal center seams with Bi-Di. The reinforcing glass yarns run *bi-directionally*, meet at right angles in a water-resistant, asphaltic bonding material.

LEADERS IN THEIR LINE



FREE SAMPLE ROLL

Compare Bi-Di Tape's strength and flexibility with any other tape approved for center seam sealing. Then see how Bi-Di's quick-stick gumming really saves you time and trouble. Write for free sample roll and complete data.

MID-STATES Gummed Paper Company

2511 S. DAMEN AVE., CHICAGO 8, ILLINOIS

New York • Boston • Philadelphia • Cleveland • Detroit • St. Louis • Atlanta • Los Angeles

AIR FREIGHT TOO COSTLY?

Continued

segment of the manufacturer's line. Moreover, consider the implication of vastly improved customer service, with prepaid air deliveries to areas within and outlying warehouse areas, in faster time than presently offered.

But let's look at a lower-valued consumer-goods product. An alert manufacturer of a line of electric appliances and devices has taken a long look at his cost of distribution. Part of his inventory is centrally located at the manufacturing plant and part with his numerous distributors. As to plant inventory, this company computes carrying charges at 20%—rather than at 25%, in line with a well-known formula. The inventory at distributors "costs nothing"—except that it is reflected in the distributor's markups.

One of this manufacturer's products, a highly effective air heater is in good demand. It wholesales at \$10 and weighs 8-1/3 pounds at shipping weight. Can this product, usually ordered in a dozen lot, be transported by air at a net saving in total distribution cost? Again, the answer is "Yes".

The mathematics are similar:

Selling price per pound	\$ 1.20
Cost of carrying inventory (20%)	.24
Average per pound cost of air transportation (1000 miles at 100 lbs.) partially at specific commodity rates, less surface freight (truck haul) ordinarily charged	.14
Net decrease in distribution costs per pound	.10

Are Distribution Costs Too High?

Obviously, this or any other manufacturer is interested in reducing costs of distribution or marketing. Statements are frequently made to the effect that marketing costs are too high. These pronouncements are not necessarily significant. We might better say that production costs—or all costs—are too high. But they are only too high if they can be reduced without significant loss in quality or quantity of goods consumed and services rendered.

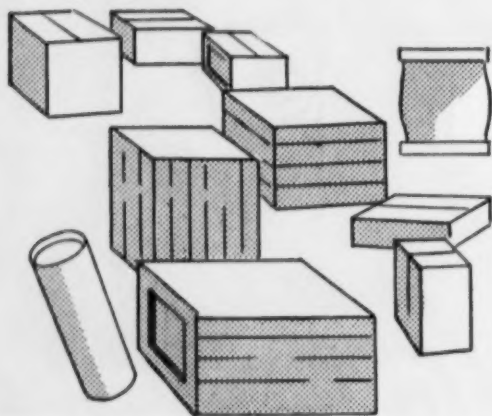
Yet when a manufacturer finds his cost of distribution constituting a higher, and his cost of production a lower, portion of total cost, he rightfully questions the efficiency of his distribution facilities and methods. What may not be considered is that our modern-day complex systems of distribution are but the natural complement of a system of mass production and specialization.

Some Major Components of Cost of Distribution

The disturbing factor is that manufacturers generally—including those of undoubted importance to the industrial economy—do not agree as to the components of distribution cost, especially those to be included in the cost of carrying inventory on the one hand, and the costs of warehousing and handling on the other.

In a recent survey, cost of carrying inventory was reported consistently at from 6 to 10%. Many economists say such cost should range from 10 to 20%, while the widely-quoted estimate attributed to Parrish

TWO WAYS AIR FREIGHT CAN BE USED TO



Packages in one shipment to New York area from plant located approximately 800 miles away...

METHOD
1



METHOD
2



leans to 25%. A comparison of the last-named theory and a composite of the judgment of present-day cost-accounting experts and economists is interesting:

	1954-55	
	Parrish	Composite
Storage	.25%	.50%
Insurance	.25	.50
Taxes	.50	2.00
Transportation	.50	.75
Handling and Distribution	2.50	3.25
Depreciation, deterioration and spoilage	5.00	3.00
Interest	6.00	6.00
Obsolescence	10.00	4.00
	25.00%	20.00%

Changes in our economy over the last twenty years have probably materially changed the values originally set by the older formula. Storage, insurance and handling costs undoubtedly are higher and taxes (especially State levies) are much higher. On the other hand, depreciation and obsolescence are probably overstated in the older valuations. Moreover, the interest figures in either valuation may be understated in terms of inventory turn. In all events, manufacturers are interested in realigning and revaluating their individual components of cost and re-examining the effect of cost of carrying inventory in profit and loss statements.

Warehousing and Handling Costs

The same lack of unanimity exists with respect to the components of warehousing and handling of inventory as exists with regard to the cost of carrying inventory. There appears to be no agreement as to

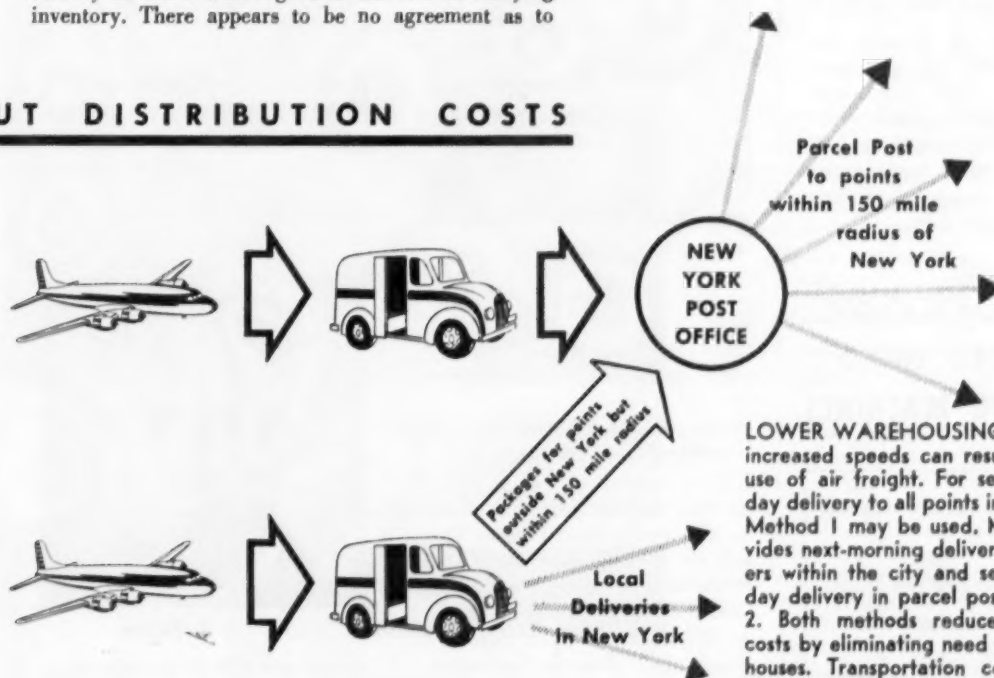
what these items should be, nor as to how they should be handled. There is no common figure, either as to the overall or as to individual components of cost.

A list of items preferred by several leading economic and lay experts appears to include these:

1. Administration and supervision, including administrative salaries, general office and clerical expense, communication and payroll insurance and taxes;
2. Clerical expense, including salaries, office supplies and related payroll insurance and taxes;
3. Direct wages for labor of handling, packing, shipping, receiving, related payroll insurance and taxes;
4. Building occupancy, including rent, taxes, insurance, repairs and maintenance, depreciation, storage charges, utilities, elevator expense, janitor supplies and janitors' and watchmen's wages, and related payroll insurance and taxes;
5. Packing and shipping supplies, including labels;
6. Spoilage and breakage;
7. Insurance and taxes on finished goods inventory;
8. Materials handling equipment costs, including taxes, insurance, maintenance and depreciation;
9. Miscellaneous expenses, including outside services, refrigeration supplies, automotive equipment costs and local delivery expenses, transportation expense in and out, expenses involved in handling returns and in taking inventory.

(Continued on page 136)

CUT DISTRIBUTION COSTS



LOWER WAREHOUSING COSTS and increased speeds can result from good use of air freight. For second or third day delivery to all points in a given area, Method 1 may be used. Method 2 provides next-morning deliveries to customers within the city and second or third day delivery in parcel post zones 1 and 2. Both methods reduce warehousing costs by eliminating need for field warehouses. Transportation costs are kept down by use of low-cost parcel post at destination.

**THE
ANSWER...**



-to many
BAG CLOSING
problems!

SEND for this new BULLETIN No. 201 which illustrates and explains how *Union Special Suspended Head Bag Closing Machines* can supply the answer to bag closing problems in small plants and large operations. Don't handicap your production with equipment that has limited capacity!

Union Special Bag Closers are designed to handle bags of heavy weight as well as light weight materials. These units are portable. Delivered to you complete with integral motor, thumb controlled clutch, automatic brake—ready to hang up, plug in, and go to work.

Union Special
SUSPENDED HEAD
BAG CLOSING MACHINES

***Union Special* MACHINE COMPANY**
415 N. Franklin Street, Chicago 10, Illinois

Gentlemen:

Please send me your new free Bulletin No. 201 describing Union Special Suspended Head Bag Closing Machines.

Name _____

Address _____

Company _____

Circle No. 127 on Reader Service Card
126

Committee Chairmen Selected for . . .

Planning the Tenth SIPMHE Exposition

FINAL plans for the tenth anniversary meeting of the Society of Industrial Packaging and Material Handling Engineers are being formulated under the guidance of some of the top men in the world of packaging and material handling. The meeting will be held in New York's Kingsbridge Armory, Sept. 19-22, and will consist of three major events, each under the supervision of a committee of qualified experts.

General Exposition . . .

The exposition promises to be the largest in the 10-year series, with approximately 50% of the total exhibit area already under



R. Chester Reed

contract. R. Chester Reed, supervisor of packages and shipping, the Texas Co., is in charge of preparations for the exhibition.

Packaging and Material Handling Short Course . . .

More sessions and more speakers than ever before are promised for this year's Short Course. This will be possible because of the efforts of a newly organized Short Course Advisory Committee made up of: Walter J. Byrd, Standard Brands, Inc.; John D. Farrington, Jr., Jiffy Mfg. Co.; and A. C. Manger, Rathbone, Hair and Ridgeway Co.

Serving as SIPMHE chairman



Allyn C. Beardsell

of the Short Course is Allyn C. Beardsell, vice president, Container Laboratories, Inc. Wilbur K. McKee, director of New York University's Office of Special Services to Business and Industry and dean of the Division of General Education and Extension Services has been named to coordinate the activities of the University and SIPMHE.

Protective Packaging and Material Handling Competition . . .

Designers and engineers of protective packaging and allied material handling techniques will enter into open competition for national



Wilmer J. Balster

recognition of their ability to serve commerce and industry. Chairman of the competition is Wilmer J. Balster, president, the Don L. Quinn Co.

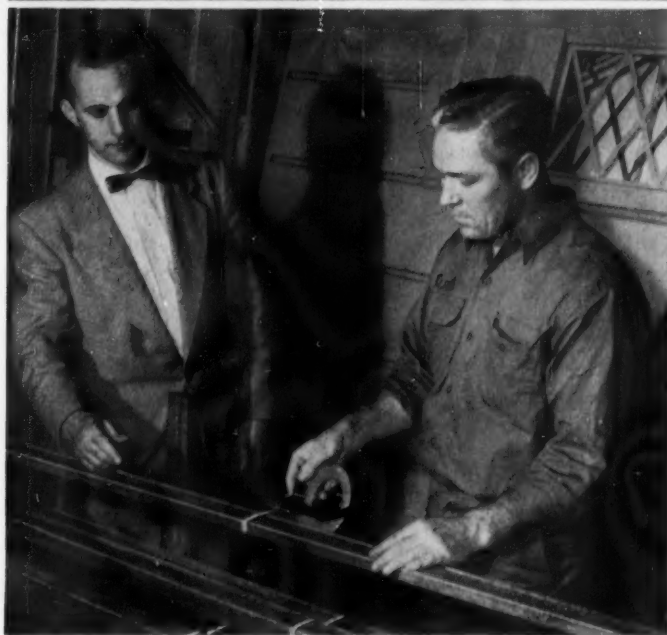
FLOW



How Brainard two-way service cuts strapping costs

Here's Brainard salesman Paul Frank demonstrating proper steel strapping applications to a manufacturer of garage doors. A bulky carton ... but two bands of Brainard steel strapping hold it secure.

STEEL STRAPPING



Photos courtesy Johannson and Taylor, Inc., Detroit, Mich

STRAPPING TAPE

In the same plant, Brainard salesman Frank checks on use of Brainard strapping tape for banding door struts. Strapping tape, applied with a hand dispenser, bands securely and quickly.

● Why does Brainard, a leading name in steel strapping, sell strapping tape too? Because Brainard knows there is a place for *both* methods in most shipping operations. Thus, Brainard can give you *unbiased* recommendations . . . and complete service.

For an unbiased strapping recommendation for every job, call your nearest Brainard office today, or write Brainard Steel Division, Dept. F-6, Griswold Street, Warren, Ohio.

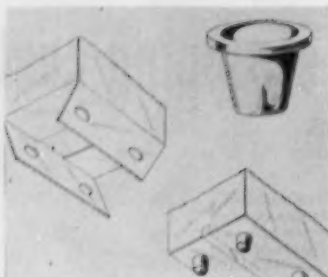


**COMPLETE STRAPPING SYSTEMS & MATERIALS •
WELDED STEEL TUBING • ELECTRO-GALVANIZED STRIP STEEL •
SCAFFOLDING • PALLET RACKS • BUILDING PRODUCTS**

Offices in principal cities throughout the U. S.

Circle No. 23 on Reader Service Card for more information

WHAT'S NEW... in Packaging and Shipping Equipment



"Feet" For Containers

Metal "pallet kup" feet, said to be particularly suitable for service where re-use of containers is a factor, have been introduced by Gaylord Container Corp. They are inserted into die-cut holes on the bottom flap of a container and are held in place by a flange. They can also be incorporated into a separate "paper" skid. In that case, the board is overlapped to permit insertion of the cups and is then stitched. In one application, "pallet kups" are used to ship up to 2500 pounds of tractor parts and act as casters, sliding over floors.

Circle No. 179 on Reader Service Card for more information



1/4-Inch Stencil Cutter

The "Ideal Quarter", a stencil cutting machine with 1/4-inch characters, has been developed by the Ideal Stencil Machine Co. It is claimed that an automatic carriage assures absolutely parallel lines and positive character and word spacing. With the "Quarter", it is possible to cut more than 200 characters in a 4" x 6" area (43 letters per running foot and ten lines per four-inch depth). The unit is 19" x 19" x 12" high and weighs 70 pounds.

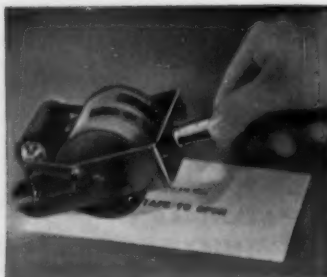
Circle No. 180 on Reader Service Card for more information



New Development in Cushioned Bags

Announcement has been made by Jet-Pak, Inc., of a new construction feature in its Jet-Pak VCI-lined cushioned bags. The new bags have strong loop stitching on each side; this affords added durability and forms an outside lip that acts as an extra buffer against shock. The bags have cushioning sealed within double walls of moisture-resistant kraft and protects the contained product from rough handling, dampness and other damage. Metal products are safeguarded from rust up to ten years.

Circle No. 181 on Reader Service Card for more information



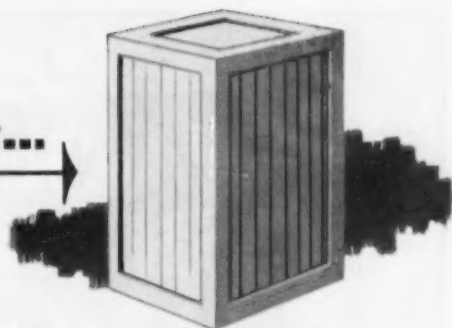
Single-Inking Printing Wheel

The Roll-A-Matic is a printing wheel that gives thousands of clear impressions on curved or flat surfaces of rubber, glass, plastic, ferrous and non-ferrous metals, wood, cloth, paper and other materials with one inking. The single inking feature is achieved by special Roll-A-Matic rollers made of highly absorbent Spanish felt. It holds enough ink for thousands of impressions. To operate, merely roll a mark without exerting pressure and lift. Manufacturer is Dri-flo Mfg. Co.

Circle No. 182 on Reader Service Card for more information

(Continued on page 142)

If you ship in Boxes now...

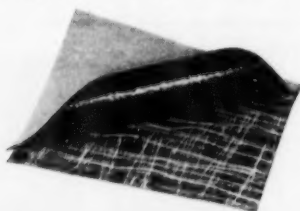


A CRATE PLUS FIBREEN

Saves You Money!



**Take a look "under the hood"
at rugged, waterproof FIBREEN**



Note the combination of double layers of wire-strong fibers, waterproofing adhesive and paper. So tough you can hardly tear it — yet it's pliable. FIBREEN can take prolonged soaking, heat and cold and rough handling in stride.

Any width available for your particular product! Light and heavy duty, including non-staining grades.

Shippers are finding that they can lighten their loads and *lighten their costs* when they ship in crates with contents wrapped in FIBREEN. FIBREEN is rugged, waterproof paper that seals against dirt, moisture, salt and smoke. It's pliable too, wraps quickly, easily, snugly around anything shipped — including products with irregular shapes — furniture, machinery, etc.

*Why not investigate these savings
in packaging and shipping costs?*



AMERICAN **SISALKRAFT** CORPORATION

Dept. FL-6, Attleboro, Massachusetts

Please send free samples and packaging information on FIBREEN.

Name

Company

Address

City Zone State

Circle No. 152 on Reader Service Card for more information



Unique Container Produces . . .

Packaging, Warehousing and Shipping

STAINLESS steel conveyor screws pose many of the handling and packaging problems which confront industry today. They are heavy, yet delicate; are irregular in shape; have a tendency to roll and to cut hands and shins with their relatively sharp flights; and are not easily identified when several are stored together.

A new packaging method has permitted M-H Standard Co. to remedy virtually all of these diffi-

culties. The company manufactures units called Saniscrews.

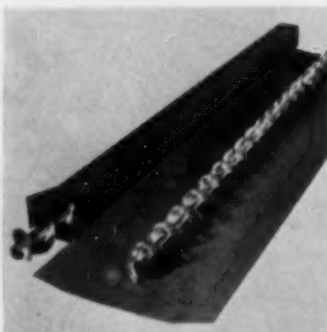
Previously, screws were warehoused in conventional ways—the easiest of which was vertical storage. The method wasted a great deal of space. Furthermore, considerable time was devoted to cleaning accumulated dust from screws before they were shipped.

Packaging costs were excessive. A six-inch screw, for example, used a container which weighed

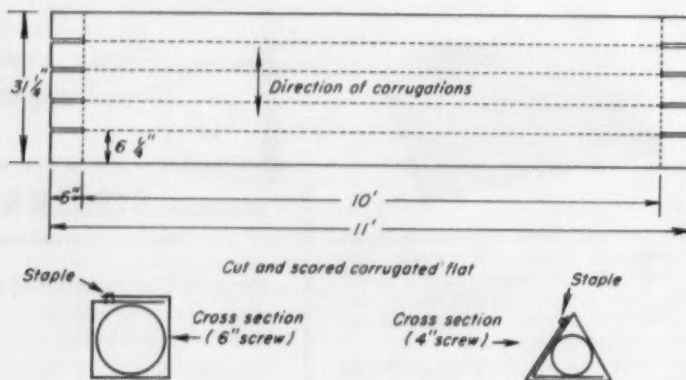
more than forty pounds and which cost \$15.

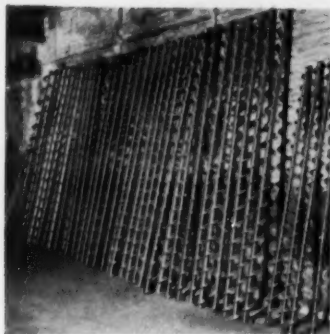
Now, a unique light weight corrugated carton is used. Its cost is only 56 cents and its weight is about 40 pounds less than the old container.

The container is furnished flat. (Sketch with this article illustrates the size container used for six and four-inch diameter screws.) In use, the flat is folded around the screws and the end flaps are folded together. The carton is then stapled



CORRUGATED CARTONS for stainless steel conveyor screws produced time and space savings. Packaging costs fell from \$15 to 56 cents.





OBSOLETE VERTICAL STORAGE was necessary before new cartons were introduced. Handling was difficult and identification had to be made by technical personnel.

Savings

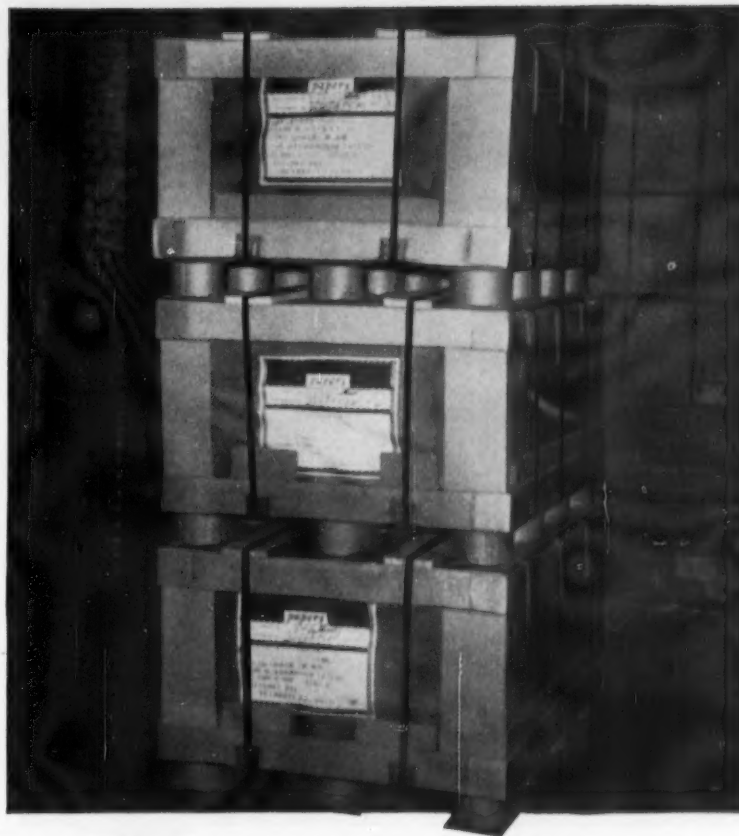
at the seam and the carton-end is marked with a felt tipped fountain brush for future identification.

For the smaller diameters (three-inch and four-inch), the flat is folded into a triangular cross-section. For the six-inch screws, it is folded into a square cross-section. A second size container, with nine-inch sides is used for larger conveyor screws.

(More on next page)



RACKS may be used for storing conveyor screws. End of each carton is marked clearly with size and finish. Inventory-taking is easy.



12,000 pounds on a 35-pound Signode Addison-Semmes pallet!

Here—from Signode—is another way to cut shipping costs which has proved successful in hundreds of plants. It's the use of Signode Addison-Semmes expendable fibreboard pallets.

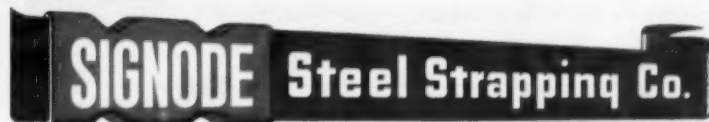
These pallets save money because they're lighter. For example, each pallet in the picture above weighs 35 pounds. Each holds a 4,000-pound load. Each replaces a skid weighing 150 pounds—a weight saving of 115 pounds per unit, or 2300 pounds per carload, in this case. At a freight rate of \$1.00 per cwt., this saves \$23.00 per car on freight alone.

Your customer benefits, too. The pallets are easier to handle with their 4-way entry. They take up less warehouse space, empty or loaded. And they're easy to dispose of—can be sold as waste paper.

Signode Addison-Semmes expendable fibreboard pallets have many other advantages. They are available in sizes and weights your shipments require. Send for the facts today.

Signode now licensor

Signode Addison-Semmes expendable pallets will continue to be made by the former Addison-Semmes licensees—a selected, nationwide group of fibreboard container manufacturers.



SIGNODE ADDISON-SEMME'S DEPARTMENT
2618 N. Western Ave., Chicago 47, Ill.

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-wide
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

Circle No. 109 on Reader Service Card for more information

How to choose the Right Closure for Your Packaging Needs!



WHETHER you now use stapling, gluing, steel strapping or gummed sealing tape as a closure, Hudson has an improvement to give you more speed, more efficiency, more protection, and more economy too! Select one of these products and let us send you a free testing sample:

FAST WELD for speed in two-strip® production line sealing—an overall center seam protection that beats stapling, stitching or gluing. The fastest, most labor-saving closure possible. Reinforced in both directions with Fiberglas®, Fast Weld comes to you with an extra heavy coat of Hudson's exclusive adhesive — Supple-ized® for easier handling.

*Authorized by amended U.F.C. Rule 41

BLUE RIBBON for speed in complete closure. The quality tape with incredible speed of adhesion. Just one fast sweep of the hands and you get a tighter, more permanent seal against dust, smoke, moisture, vermin. The secret — Hudson's exclusive adhesive, Supple-ized to give you instant full depth moistening . . . quicker, better sealing.

ORANGE CORE for low cost standard sealing. Every inch on every roll sticks with the same bulldog grip because Hudson controls all its ingredients. Hundreds of thousands of users depend on Orange Core's consistently superior quality and have made it the world's largest selling gummed sealing tape.

Quality Products by

Hudson
PULP & PAPER CORP.

477 Madison Ave., New York 22, N. Y.

Circle No. 158 on Reader Service Card for more information



P.S. On your letterhead—write Dept. F-6 and tell us which product you want to free-test . . . Fast Weld, Blue Ribbon, or Orange Core!

UNIQUE CONTAINER

Continued

Advantages

Seven important advantages have resulted from the new packaging method:

1. *Protection of fine finish*—The fine finish of the conveyor screws is required by users primarily for ease in cleaning. Scratches, burs, nicks and pits are traps for the material being handled.

2. *Cleanliness in transit*—Because screws are now shipped in fully enclosed containers, they arrive bright and clean, ready to use.

3. *Safer handling*—Heavy screws have a tendency to roll and shift. Workmen have experienced finger, hand and shin injuries in truck loading and in-plant handling. Such injuries are impossible when screws are packed in cartons.

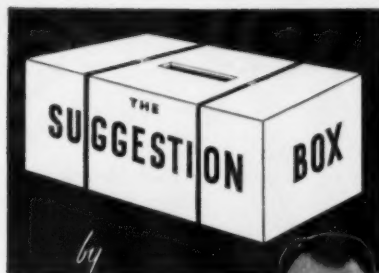
4. *Easier inventory control*—Packed in cartons, screws can be stacked in racks. Since there are many variations in diameter, pitch, gauge, type of material, finish and hand, it had always been necessary for technical personnel to identify screws for shipment. Now, it is a routine matter for the shipping clerk to pull out the exact model required (all cartons are clearly marked.) Previous attempts to identify screws by means of tags and marking proved unsatisfactory.

Because no physical identification is required and no handling of parts is needed, inventory is more easily taken.

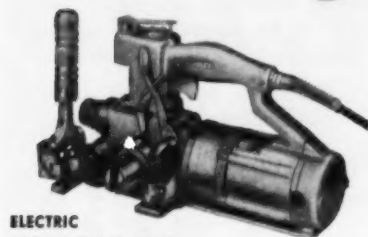
5. *More compact storage*—Cartons can be stacked to any desired height on racks. The space formerly used along a wall for storing conveyor screws is now utilized in production.

6. *Quicker delivery*—Screws are always clean and ready for immediate shipment, requiring only addressing on the outside of the carton.

7. *Advantages to buyers*—All the advantages which have resulted in M-H Standard's plant have also been realized by customers.

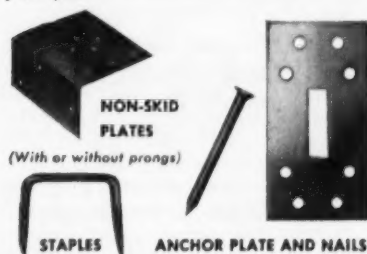


STANLEY THE STEEL STRAPPING SPECIALIST



ELECTRIC
CAR BANDING TOOL

Here's a real time-saver for those who ship by rail! This Electric Car Banding Tool power-tightens $\frac{3}{4}$ " or $1\frac{1}{4}$ " band to the desired pre-set tension in a jiffy. Now, it has a brand new feature — a built-in shear — that eliminates the need for an extra shearing tool. This shear has an automatic handle return that speeds up the job.



I suggest you make use, too, of Non-Skid Plates for use on runners of skids to prevent excessive movement. Other Car Banding accessories that will help you ship your product safer are Car Banding Staples, Anchor Plates, Cement Coated Nails and Car Banding Stays.



COLORGRAPH STRAPPING

Colorgraph "private brand" Strapping has your Company or product name, trademark, or sales message lithographed on it in your choice of a wide range of colors. Even more important than its advertising function, Colorgraph prevents pilferage. Because Colorgraph is not easily obtainable, like plain black strapping, thieves cannot take off the strapping, remove the contents of the package and restrap the case or carton.

JUNE, 1955



Greater protection at smaller cost is what you get when you use the Stanley Car Banding System. Car Banding provides better protection than wooden bracing and reduces product damage and damage claims. With Car Banding, far less dunnage (on which freight must be paid) is required.

USE

STANLEY®

STEEL STRAPPING

WHATEVER YOU SHIP BY RAIL CAN BE SHIPPED SAFER AND MORE ECONOMICALLY BY USING THE STANLEY CAR BANDING SYSTEM

Carload shipments by G. F. Heublein & Bro., Inc., Hartford, Conn., manufacturers of fine wines and liquors, get the extra-special protection against breakage they need, by using the Stanley Car Door Banding System. Stanley Carloading Band is secured in this application to the car door post with Anchor Plates. After the load has been placed in the car, the band is tensioned with the Stanley Car Banding Tightener and sealed across the door (above) with a Stanley Car Banding Sealer. Car contents are prevented from shifting sideways and jamming against the doors or falling from the car when the doors are opened.

No matter what your product, Stanley has a complete line of hand and power Car Banding Tools to meet your specific shipping requirements.

MAIL COUPON FOR FREE CATALOG AND BOOKLET



INSURE IT — SECURE IT WITH STANLEY STEEL STRAPPING

STEEL STRAPPING DIVISION THE STANLEY WORKS

STANLEY STEEL STRAPPING DIVISION, 086-S LAKE ST., NEW BRITAIN, CONN.

Telephone: BAldwin 9-2021

Please send Catalog SS-9C and Booklet "Stanley Car Banding System."

NAME _____
POSITION _____
COMPANY _____
CO. ADDRESS _____
CITY _____ ZONE _____ STATE _____



Stanley Tools • Stanley Hardware • Stanley Electric Tools • Stanley Steel Strapping • Stanley Steel

Circle No. 115 on Reader Service Card for more information



CHECK THE BOX AT THE BOTTOM



CORRUGATED AND SOLID FIBRE BOXES
FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES
KRAFT BAGS AND SACKS

...to see how Gaylord Boxes save you money in warehousing. They make possible taller stacking to better utilize your valuable storage space. The superior materials and precision construction of Gaylord Boxes help prevent "stack-bottom bulge."

For proof of how Gaylord Boxes can protect your profit, as well as your product, call your nearby Gaylord office.

GAYLORD CONTAINER CORPORATION • ST. LOUIS

SALES OFFICES FROM COAST TO COAST ★ CONSULT YOUR LOCAL PHONE BOOK
Circle No. 55 on Reader Service Card for more information

PREPARING SHIPMENTS . . .

(Continued from page 117)

single large drum. Then, the entire shipment of caps would have to be held up until the next day for a plane with large enough capacity.

To meet this difficulty, the cap manufacturer changed to a smaller shipping container which would hold 20 pounds of bottle caps. If there is not enough room, some, or all, of the shipment can be held over to be shipped on a smaller plane leaving later the same day.

3. Consider dimensional weight when planning package sizes.

In air freight, the cost of over-size packages is high. Rates are established on a basis of 250 cubic inches to a pound (dimensional weight), or by the actual weight of a package, depending upon which is the higher. This is clearly illustrated by a 36-inch square package which weighs 30 pounds. To determine the cost of shipping such a package it is necessary that the dimensional weight be calculated and compared with the actual weight.

To get dimensional weight:

(1) Calculate the cubic inches in the package.

$$36'' \times 36'' \times 36'' = 46,656 \text{ cubic inches}$$

(2) Divide cubic inches by 250.
 $46,656 \div 250 = 186.62 \text{ pounds}$

Thus, although the actual weight of this particular package is only 30 pounds, the dimensional weight, (on which charges will be made,) is 187 pounds.

4. Call the air line on all shipments.

Tell the exact weight of your shipment. (If you do not have a scale, don't guess. The airline will weigh it for you.) Tell the destination of your shipment.

5. Make markings clear.

Special handling instructions, addresses and any necessary information should be large and easy to read. Air lines usually recommend a large sticker on at least two sides and on the top of the package.

Our thanks to United Air Lines for information and photographs used in the preceding report.

FLOW



Not when you use KIMPAK 301!

New KIMPAK 301 is the practical solution to surface damage to furniture finishes during shipment. KIMPAK 301's ability to shield the fine finish against scratching makes it the ideal protective agent in a furniture package. KIMPAK 301 costs no more than ordinary materials. It is specially designed to protect against the major causes of scratching:

1. Abrasiveness of the inner spacers. KIMPAK 301 provides a scratch-free, non-disintegrating, compressible barrier between inner spacers and the furniture finish. Its conformability ensures a snug package.

2. Dust, dirt, cinders that sift into the container. The combination of

high creping and porous structure—exclusive with KIMPAK 301—provides a trap for dirt, grit or cinders, which may lodge between the packaging material and the polished surface.

3. Abrasive action of harsh packaging materials. KIMPAK 301 is soft and non-abrasive . . . free from wood splinters, dirt and other abrasive materials. No lumps, hard glue spots or stiff wrinkles.

Scratching is but *one* of many problems encountered in furniture packaging. These problems are *solved* when new KIMPAK 301 is specified. For more details, contact your local KIMPAK distributor, or mail coupon below.

SPECIFY KIMPAK 301 TO SOLVE THESE INTERIOR PACKAGING PROBLEMS:

Scratching
Pressure-marking
Staining
Chafing
Conformability
Ease of handling
Disintegration

Whatever your protective interior packaging requirements, there is a Kimpak specification that does the job . . . better!

Kimberly Clark
INTERIOR PACKAGING
KIMPAK 

KIMBERLY-CLARK CORPORATION
Neenah, Wisconsin

We would like to learn how new KIMPAK 301 can provide better protection at lower cost for our products. Please send complete information.

Name

Firm

Street Address

City Zone State

Circle No. 147 on Reader Service Card for more information

THE SnakeTape IDEA...



*For rail shipments
under Rule 41 U.F.C.

use 2 strips only!

IT'S 2/3 FASTER because you seal only the two center seams!

IT'S 35% STRONGER because reinforced Snake Tape has strap-like strength. Strength you'll find in no other gummed tape because it's reinforced with rayon yarns... the same rayon yarns used in the best auto tires for superior shock absorbence.

PROVE TO YOURSELF, and at our expense, how much you can save in sealing time and in damage claims. Send for FREE sample of Angier Snake Tape now.

Free - 15 yd. sample



ANGIER CORPORATION
Framingham 13, Mass.

Circle No. 161 on Reader Service Card
136

AIR FREIGHT . . .

(Continued from page 125)

What the sum of these items may be in terms of percent of net sales of various types of manufactured goods seems to vary considerably. One earlier survey² indicated for a substantial number of corporations a range in warehousing costs at that time of from .34% for tobacco products to 4.29% for petroleum products. To that expense must be added transportation costs, which varied from .31% for jewelry to 4.32% for agricultural equipment.

A number of the components of warehousing cost have increased in percent of the base of net sales in the last fourteen years. It therefore appears that warehousing and handling costs, leaving out any duplication of components contained in the cost of carrying inventory—the cost of possession—

- (2) "Distribution Costs" - McNair, Telle and Mulhearn; Harvard Business School, Division of Research, 19-41.

Circle No. 93 on Reader Service Card



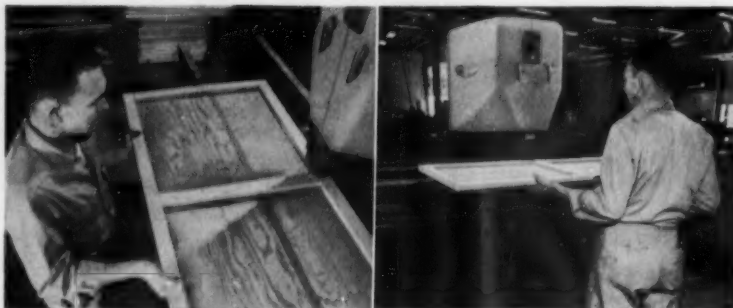
You can speed up wrapping production with low cost, lightweight SOF-RAP. Men work "bare-handed" with no danger of cuts or bruises — no slow-downs from clumsy gloves. SOF-RAP contains no harsh cutting glues or silicates. That's why, too, it provides the perfect cushion protection for your product. Investigate TYPE C for interior cushion protection from shock and bounce and TYPE B for permitting slippage and preventing friction or abrasion damage. In sheets, rolls, tubes and bags.

FREE, HELPFUL BOOKLET,



Says:

"AUTO-NAILER MAKES CLEATED BOXES
MUCH FASTER THAN PREVIOUSLY POSSIBLE"



As soon as Amendment No. 1 to Federal Specification PPP-B-601 was published, Temco of Dallas, one of America's leading aircraft companies started making all their cleated plywood shipping boxes on their Auto-Nailer. They make 24 different sizes—using panels from 12 x 12 to 24 x 48 inches, changing from one to another in seconds. Auto-Nailer makes, drives and clinches 3 nails per second, so turns work out much faster.

Write for free catalog

AUTO-NAILER CO., 267 Marietta St., N.W., Atlanta, Ga.

Circle No. 14 on Reader Service Card for more information



FLOW



"Hairflex packaging is as dependable as our DC-7's!"

says E. L. Elliott — Delta-C & S Air Lines

Shipments of delicate flight instruments go to 16 states and 7 countries without one single breakage!

From Delta-C&S headquarters in Atlanta, Georgia, daily shipments of fragile instruments are sent to 22 maintenance bases. Physical-Stores Foreman, E. L. Elliott, reports: "Since adopting the protective packaging of Armour HAIRFLEX in 1953, we have not had one single case of breakage."

HAIRFLEX is made of springy curled hairs locked in latex rubber—a lively cushion that absorbs even the hardest in-transit shock and vibration. Throughout industry experts like Mr. Elliott are finding that the pillowed protection of HAIRFLEX is the best solution to the delays, repair bills and customer dissatisfaction which result from shipping damage.

You can order HAIRFLEX in bulk, or, Armour will die-cut HAIRFLEX pads to fit *your* product—at no extra cost. So, insist on pillowed protection for your product—HAIRFLEX protection--and send this coupon, today!

Bulk HAIRFLEX comes in sheets of various sizes and densities.



Die-cut HAIRFLEX packs are designed by Armour to fit a specific product.



Note how completely HAIRFLEX protects this fragile instrument.



ARMOUR

Curled Hair

Armour and Company • North Benton Road • Alliance, Ohio

MAIL THIS COUPON TODAY!

F6

Armour and Company, North Benton Road, Alliance, Ohio

Please send me: ☐ A Free Sample of HAIRFLEX ☐ Booklet—"Pillowed Packaging" ☐ Pack specifications and cost estimate for my product (description enclosed).

Name _____ Title _____

Firm _____

Address _____

City _____ Zone _____ State _____

Circle No. 8 on Reader Service Card for more information

AIR FREIGHT

Continued

may average from 8 to 10% of net value of inventory handled.

We hope that more precise estimates of warehousing and handling charges, as well as modern costs of carrying inventory, may be pinpointed by an important research project⁽³⁾ presently under way.

The many components of cost

of distribution are not always assigned their proper weight in the operating tables of cost-accounting. According to Heckert and Miner's "Distribution Costs", these components include:

1. Direct selling expenses (offices, salaries, supervision and expenses).
2. Advertising and sales promotion expense (including publicity, education and market development expense);
3. Transportation charges on

outbound, returned sales, local deliveries, maintenance of outbound transportation facilities, and distribution's share of traffic services;

4. Warehousing and handling expense;

5. Credit and collection expense;

6. Financial costs of carriage of inventory, accounts receivable, bad debts, etc.;

7. General distribution expense, expense of distribution accounting and market research and distribution's share of general administrative expense.

This imposing list of corporate expenses for getting goods to the market indeed commands a respectable percentage of the consumer's dollar.

Can the infant in transportation—air freight—assist in reduction of inventories? Yes, as to many items of procurement and as to many products.

It is not expected that the manufacturer of air heaters immediately will change his method of marketing through distributors; nor will he adopt at once a lower volume of centralized inventory, with transportation by air direct to his distributors' customers. Various adjustments in pricing would be necessary, the "quid pro quo" being a reduction in the distributor's markup, and therefore a more competitive retail price, in return for elimination of the cost of carrying inventory now incurred by the distributor, at the expense, in the end, of the price to the consumer.

On the other hand, the carbide tool manufacturer, with company-owned or leased warehouses, can reduce substantially and immediately a great deal of capital now employed in carrying high-value-per-pound inventory at several points, by the simple, much less expensive method of warehousing centrally, in lower inventory volume, while affording customers faster, more dependable delivery service by one or more of the many special services offered by air carriers.

(3) *An Air Freight Research Project by Harvard School of Business Administration, under the jurisdiction of Howard T. Lewis, Professor of Marketing and Chairman of the Board, Harvard Business Review.*

B-G FOR SAFE HANDLING AND SHIPPING



MODEL A

Pallet Box is easily attached to any standard pallet by means of 4 corner irons and flat or round steel strap. Collapsible for storage and return shipment.



MODEL C

B-G Collapsible, hinged pallet box with drop-leaf panel for greater accessibility. All B-G pallet boxes can be furnished with top cover, if desired.



MODEL B

This collapsible pallet box has front opening for easy access to contents when stacked or in racks. Furnished with or without self-locking insert panel.



EXPENDABLE

B-G expendable pallet box, designed to withstand specified loads. Inexpensive, permitting discard after usage. Top cover, if desired.



PALLETS

Hardwood pallets made in all sizes and styles. Nailed with cement-coated drive screws.

For greater strength in stacking, materials handling and shipping, use Bigelow-Garvey Tight-Corner Collapsible Crates and Pallet Boxes. Designed to withstand transportation and handling hazards, B-G containers are extra strong for stacking and ideal for storage. Shipped in two or three sections. Fully assembled. Pre-drilled nail holes enable quick packing. Let us design sample container to meet your requirements.



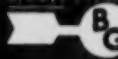
TIGHT
CORNER
CRATE

The collapsible crate with the exclusive B-G Tight-Corner Hinge. Offers unusual rigidity and strength, yet light in weight. Easily assembled. Nail holes pre-drilled. Made up in 3 parts. Shipped collapsed.



always check

Write for complete details and prices to...



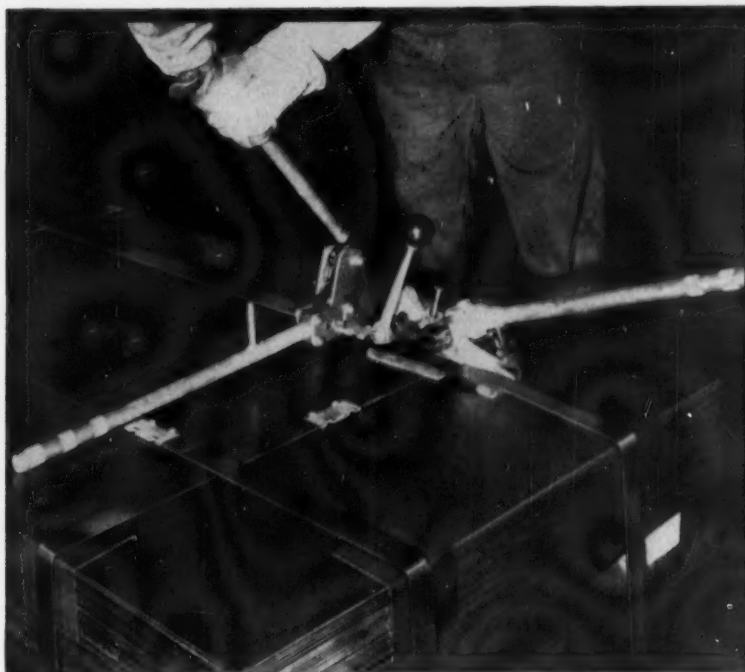
BIGELOW-GARVEY
lumber company

336 W. HURON STREET • CHICAGO 10, ILLINOIS

Phone
Whitehall
4-5252

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USS Gerrard ties *ANYTHING* you've ever seen



PACKAGES OF
SHEET STEEL
TO
PALLETES OF
TRACTOR
DIFFERENTIAL
HOUSINGS



- USS GERRARD Strapping, Round or Flat, is available in a wide range of sizes—tailored for every type application from small parcels to palletizing, unitizing, crating, and carloading.
- USS GERRARD Round Strapping costs about 40% less than any other form of metal reinforcement.
- USS GERRARD hand-operated and semi-automatic machines tie quickly, efficiently.
- USS GERRARD-strapped bundles and pallets can be handled with greater safety in less time. Accidents averted, man-hours saved.
- Steel-strapped bundles require only one inventory. No loose pieces. Pilferage eliminated . . . damage prevented.
- Single-source buying of both Round and Flat Steel Strapping reduces freight charges and paper work.

Bring your packaging and tying problems to USS GERRARD. Our engineers will help you solve them—at no cost to you.

SEE The United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

GERRARD STEEL STRAPPING DIVISION, UNITED STATES STEEL CORPORATION
General Offices: Chicago, Illinois

USS GERRARD

Round and Flat **STEEL STRAPPING**

UNITED STATES STEEL

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SEND FOR THIS NEW
FREE BOOKLET NOW



Gerrard Steel Strapping
2937 West 47th St., Chicago 32, Ill.

Please send me, free of charge, the new
36-page GERRARD Blue Book of Packaging.

Name

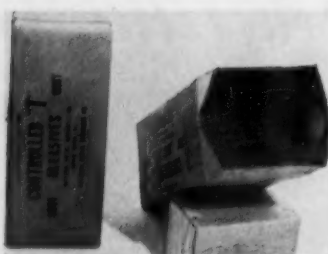
Company

Address

City.....State.....



HEAVY equipment weighing up to 2500 pounds is shipped in this container. It consists of a double-wall 700# test liner, 2 single-wall 500# test covers, 6 double-wall pads and 6 metal legs.



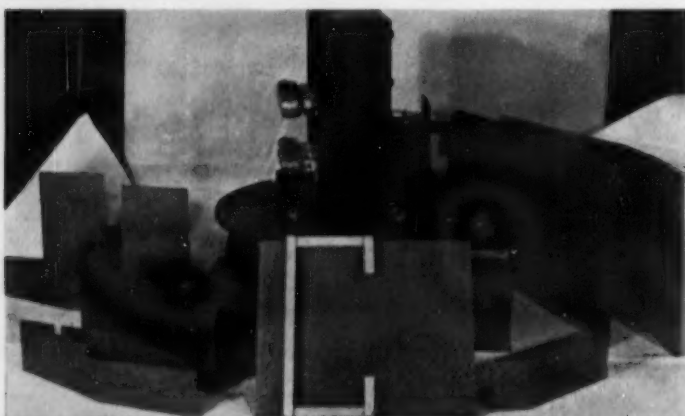
ABRASIVE SHOT GRIT is easier to handle, store and load with this 275# test box. Unlike former container used, corrugated box can be moved on mechanical equipment. Shot can be poured from box.



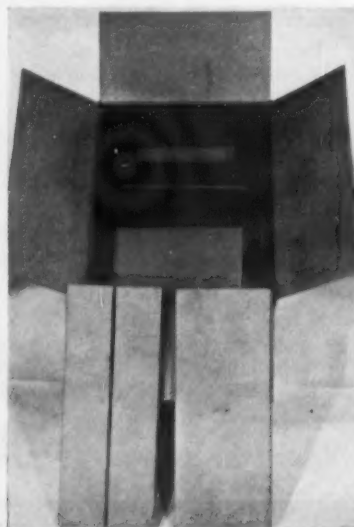
DAMAGE CLAIMS were sharply decreased after adoption of "Doughnut" box for coils of malleable wire. Change from laborious hand-wrapping effected a substantial saving in packaging.



ODD SHAPED drill presses are heavy and unwieldy. In this box, two stitched tubes are mounted on press to keep top portion of outer container rigid and hold press firmly centered in box.



AIR CIRCUIT BREAKER box weighs 32 pounds less than former container. The outer regular slotted container and certain interior pieces are made of 350# double-wall board. The pad is 275# single-wall.



Fibre Box Association Displays

Outstanding Fibre Containers

REPRESENTING the latest advancements in fibre boxes and fibre-board, 84 entries in the 1955 Fibre Box Exhibit were displayed at the Spring Meeting of the Fibre Box Association.

The exhibit contained boxes for packaging products all the way from heavy machinery and equipment to live poultry and pets. Purpose of the exhibit was "to point to the versatility of fibreboard as a tough, adaptable and economical packing material." Each of the entries in the exhibit represented a conversion to a fibre box from another type of container, a new design in a fibre container, or a new use for fibreboard.

Model A Bagpaker[®] makes one man a team



The Model A Bagpaker[®] makes large tonnage bagging of free flowing materials a one man operation—and up to 350 tons can be bagged per 8 hour shift without overtime.

All the operator does is hang the empty bags on the filling spouts. Accurate weighing, filling, settling and sewing are fully automatic.

Engineered and manufactured by Bagpak Multiwall Bag experts, the Model A Bagpaker[®] is designed for reliability and durability. It can be depended upon to give years of service—and to pay for itself in as little as one year. If you are interested in the utmost in economy and efficiency in packaging bulk materials, you'll want to have all the details on this efficient machine. For complete information on how the Model A can fit your packaging picture write to: L-17

International Paper Company, Bagpak Division
220 E. 42 Street, New York 17



International Paper

BAGPAK DIVISION COMPANY

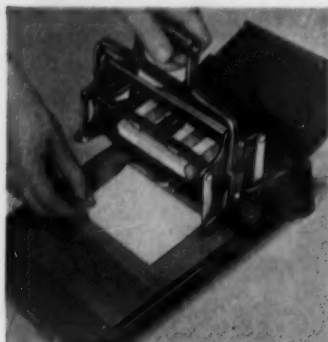
BRANCH OFFICES: Atlanta • Baltimore • Baxter Springs, Kansas • Boston • Chicago • Cincinnati • Cleveland • Dallas • Denver • Des Moines • Detroit • Kansas City, Kansas • Los Angeles • Louisville • Minneapolis • New Orleans • Philadelphia • Pittsburgh • St. Louis • San Francisco • IN CANADA: The Continental Paper Products, Ltd., Montreal, Ottawa, Toronto

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MARKING DEVICES and BLACK TEX STAMPS for every purpose

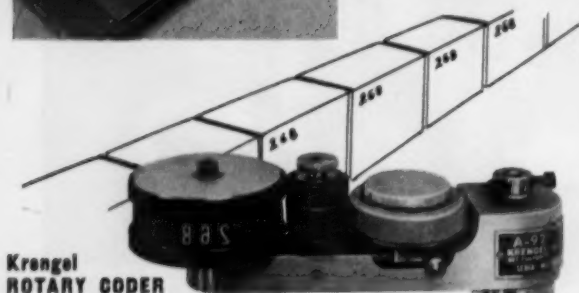
DIRECT FROM MANUFACTURER

The unlimited variety of Kregel stamps has earned for us the reputation of being the "department store of marking devices." Free consultation. Prices quoted from your designs; or call us for complete copy and design service.



**Kregel
PRINTING PRESS**
saves valuable time . . .
cuts costs
5 sizes priced
from \$20 up

For quick, easy quantity printing on paper, textiles, cardboard, or any other material. Imprint your own advertising, labels, tags, envelopes . . . dozens of other uses. Can also be adapted to print on curved surfaces. Simple action . . . excellent results. Adjustable two-way guide, dry ink pad and ink distributor. Uses black-ten dies or interchangeable Kregel BaseLock Type.



**Kregel
ROTARY CODER**

Automatically prints names, dates, codes or other identification on boxes, cartons, packages, cases, any kind of surface—for shipping or stock keeping. Engineered of heavy gauge steel for high-speed, precision operation. Powered through friction roller attachment. Self-inking. Quick change rubber type and dies available.

Priced from \$95



**Kregel
ENGRAVED
BLACK-TEX STAMPS**
beat ordinary rubber 4 ways

Acid proof . . . deeply engraved for razor sharp impressions . . . long resistance . . . long lasting. Our craftsmen duplicate any design or lettering in engraved Black-Tex stamps and dies. For all your marking devices . . . stock or made-to-order . . . call or write Kregel for super service at lowest cost. Catalog on request.

Kregel BASELOCK RUBBER TYPE
Makes "in-plant" printing professional

Available in all sizes for any purpose . . . accurately made for uniformity. Supplied in sets of letters or figures. Type is easily slipped into holder . . . interchangeable on same holder . . . permits use of various type sizes in holders of many sizes and designs. Kregel BaseLock Type Sets produce quality results on self-inkers, stamp mounts and on the Kregel Printing Press.

Priced from \$1.65 to \$22.00



KRENGEL MANUFACTURING CO., INC.

Dept. F, 227 Fulton Street, New York 7, N. Y.

Tel. COrtlandt 7-5712

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142

PACKAGING & SHIPPING NEW EQUIPMENT

(Continued from page 128)

Heat-Sealing Powder

Eastman Chemical Products, Inc. has developed a half-second butyrate heat-sealing compound in convenient powder form. The material works best with any porous or semi-porous material, and is most effective on papers, cloths and wood. There is some indication, too, that it can be used on aluminum foil. For use, Eastman suggests that the sealing machine be operated at about 40-60

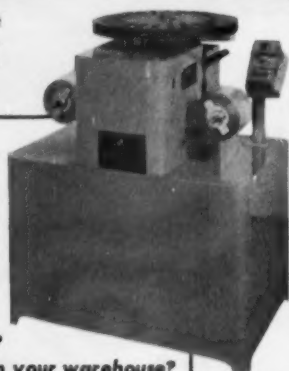


pounds-per-square-inch pressure, at a temperature of 325 F. Blocking occurs at temperatures in the neighborhood of 160 F at slight pressures. Samples of the compound are available, and Eastman's laboratory technicians are prepared to lend their help in determining its usefulness in solving adhesive problems.

Circle 183 on Reader Service Card for more information

PAK-RAPID equipment
eliminates old-fashioned,
manual packaging
operations.

DO YOU



1. Buy prefab bags?
2. Inventory them in your warehouse?
3. Print them at added cost?
4. Deliver them to the operation?
5. Open them by hand?
6. Hand fill them?
7. Seal them by hand?
8. Count them by hand?

ONE PAK-RAPID MACHINE ELIMINATES THESE OLD-FASHIONED METHODS, DOES THESE JOBS AUTOMATICALLY IN A ONCE THROUGH OPERATION.

In addition, it gives you: versatility-efficiency-economy-simplicity. Get full details and new literature from your PAK-RAPID representative or, write us direct.

PAK-RAPID INC.

Incorporated 1945

Builders of Fine Packaging Machines

530 N. 21st Street

Philadelphia 30, Pa.

Circle No. 96 on Reader Service Card for more information

FLOW

Stronger Tape

Behr-Manning has designed an adhesive paper tape for industrial holding applications requiring high-strength and high adhesion with a total freedom from adhesive deposit. Field testing has indicated its fitness for such uses as holding protective coverings during manufacture, storage or shipment of machine tools and other heavy equipment; and in sealing of fiber tubes, cartons and other containers. The tape has been designated,

"No. 131 Behr-cat Flatback." Minimum tensile strength is 45 pounds. The unusual strength is attained by use of a backing made of four-mil rope stock and matched by an adhesive strength of 65 oz per inch of width. Elongation is five per cent. Total thickness is eight mils and the tape withstands temperatures up to 250 F.

Circle 184 on Reader Service Card for more information

Stitcher Needs No Clincher

Acme Steel Co. has developed a stitcher which closes tops and bottoms of filled boxes manually, semi-automatically, or fully automatically with-

EVERYTHING YOU WANT IN A MARKING TOOL!



Dri-flo Roll-A-Matic Printing Wheel

A Low Cost, Trouble-Free, Lifetime Tool Engineered for Speed, Quality and Flexible Use.

THE TOOL First time you use this sturdy, precision built marking tool you'll agree it's the best available. Roll-A-Matic prints crisp, permanent mark on hundreds of different kinds of surfaces—curved or flat. Merely roll mark and lift. Automatic snap return, light weight (27 ounces), self inking, gives 1,000's of impressions with one inking. Can be disengaged for continuous rolling.

INKS Order from Dri-flo specially formulated inks recommended for best results in marking a wide variety of porous and nonporous surfaces. Complete range of colors in both indelible and quick drying types.

TYPE Roll-A-Matic is equipped with solid molded dies or with Base Lock Base for use with inter-changeable Base Lock Type. The unique locking feature of the Base Lock type permits rapid type changes yet once in place, type will not loosen or tilt.

Write

DRI-flo MFG. CO.
410 E. FIFTH ST.
ROYAL OAK, MICH.

Circle No. 157 on Reader Service Card for more information
JUNE, 1955

Circle No. 80 on Reader Service Card for more information

NEW

ROL-IT-ON!

STENCIL MARKING SYSTEM

FOR ECONOMICAL - EFFICIENT

HI-SPEED STENCILING

Since the invention of the stencil cutting machine, there has been a constant search for a rapid yet economical method of applying ink through cut stencils. After years of development research ROL-IT-ON is the answer. Actual field tests have proven ROL-IT-ON to be many times faster and more efficient than any other stenciling, addressing, or marking method today. Prove the worth of ROL-IT-ON to your own satisfaction. Let your nearest D B distributor introduce you to this new concept in production stenciling. You have waited years for this so don't delay . . . contact him today.

the first GREAT improvement in stenciling in 20 years

MANUFACTURED BY

DIAGRAPH-BRADLEY INDUSTRIES, INC.

FIRST IN STENCILS SINCE 1893

P. O. BOX 269 HERRIN, ILL.

DISTRIBUTORS IN ALL PRINCIPAL CITIES



This "free" file-folder kit will show you

How to modernize your shipping operations

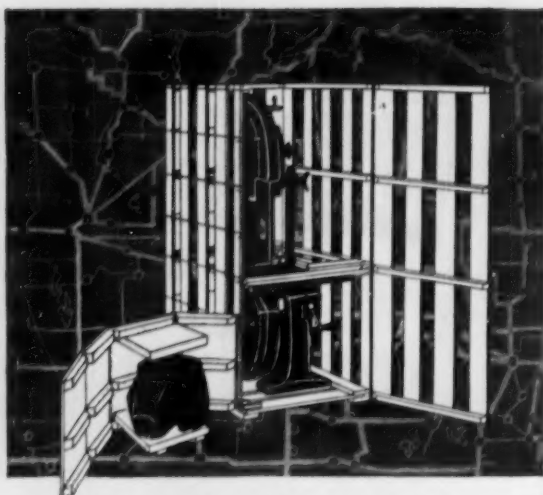
NOTHING LIKE IT EVER BEFORE. Not a catalog of products, but a file-folder of systems created to streamline shipment addressing and product identification marking, and simplify shipping paperwork. It describes and illustrates how to address and mark shipments faster, cheaper, and with less errors . . . how to tie-in addressing operations with preparation of shipping paperwork . . . and many other methods for making your shipping operations more efficient at a lower cost.

Weber

GET YOUR COPY OF THE WEBER LABEL AND MARKING SYSTEMS FILE-FOLDER KIT RIGHT AWAY. NO CHARGE OR OBLIGATION.

label and marking systems
Division of Weber Addressing Machine Co.
Dept. 1-F, Mount Prospect, Illinois
Phone: Clearbrook 3-2465

Circle No. 134 on Reader Service Card for more information



Any size, Any shape
No matter where it's bound

SHIP IT WIREBOUND!

There is practically no limit to what you can ship in a Wirebound . . . for Wirebound is a most versatile container. Wirebounds combine the strength of steel wire with the resiliency of wood in limitless combinations. For example, look at the rock bit box on the left. This small, rugged Wirebound eliminated previous stacking failure and in-transit damage losses. So did the Wirebound band saw crate on the right. For greater safety and greater savings, investigate Wirebounds . . . today!



Wirebound
BOXES & CRATES

MAIL THIS COUPON NOW!

WIREBOUND BOX MANUFACTURERS ASSOCIATION

Room 1171 327 South LaSalle Street, Chicago 4, Illinois

- ☐ Have a sales engineer give me the whole story
☐ Send me a copy of "What to Expect from Wirebounds"

Name _____

Firm Name _____

Address _____

City, Zone and State _____

Circle No. 136 on Reader Service Card for more information

144

out a clincher or retractable anvil. All stitching is done from the outside of the box. Outer box flaps are fastened securely to the inner flaps with arcuate wire stitches which are self-clinching and have a one-inch wide crown. Regular slotted, full or partial overlap cartons (single or double wall) can be closed on the stitcher. It is claimed that one operator can stitch up to 900 average size boxes per hour.

Circle 185 on Reader Service Card for more information

Low-Cost Carton Sealer

High-speed, low-cost sealing of cartons and/or application of ungummed labels is claimed for a hand-sealer trade-named Lezam by the manufacturer, Ever-Seal Industrial Glues, Inc. The unit uses moderately priced liquid glue. Because of the flexibility in applying the adhesive to any area, large or small, Lezam-sealed cartons are reportedly extra-neat in appearance. The entire portable hand unit, which sells at \$39.50, weighs less than five pounds when filled with adhesive.



Circle 186 on Reader Service Card for more information

Low-cost case marker saves \$



pays for
itself in
weeks!

ROLACODER
Imprinter
attaches to
conveyor or
case-sealer



Now you can do away with that costly extra operation for manual rubber-stamping or stencilling of code-dates, lot numbers, contents descriptions, etc. on cases . . . or reduce big inventories of completely printed cases . . . and save thousands of dollars annually. Use an inexpensive ROLACODER machine to mark your cases automatically on the production line. Compact, precision-made ROLACODER is friction-operated, self-inking—makes single, accurately located imprint on each case to register with other copy. Uses quick-change rubber type or dies, holds 8-hour ink supply. Different models available to imprint top, ends, sides of small or large boxes, cartons, cases, other packages.

Write for descriptive literature

Gottcho

ADOLPH GOTTSCHO, INC.
Dept. D, Hillside 5, N. J.

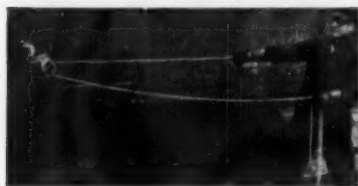
Automatic
CODING, MARKING,
IMPRINTING
MACHINES

In Canada: RICHARDSON AGENCIES, LTD., Toronto & Montreal
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FLOW

Circle No. 94 on Reader Service Card

NOLAN ONE-MAN CAR DOOR OPENER



**Opens Any Box Car
Door in 20 Seconds
or Less! \$37⁵⁰
EACH**

FREE LITERATURE

F.O.B. NOLAN CO., BOWERSTON, OHIO

THE NOLAN COMPANY

118 Pennsylvania Street, Bowerston, Ohio

Please send ☐ ONE MAN CAR DOOR
OPENER at \$37.50
☐ FREE LITERATURE

NAME

ADDRESS

CITY ZONE STATE

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IT ONLY TAKES 2 . . .

RULE 41 AMENDED TO ALLOW 2-STRIP CENTER-SEAM SEALING

CUT COSTS UP TO $\frac{2}{3}$ WITH

Filament Reinforced Sealing Tapes
And The FAMOUS

DERBY 32-T



The first important
closure method change in
40 years! . . . now use 2 strips of tape for all shipments! The
Derby 32-T especially designed to dispense all brands of tough
filament reinforced tapes quickly, easily, accurately!



Cut Your Shipping Room Costs!

Write now, Dept. F for free booklet about 2 strips and the Derby 32-T

DERBY SEALERS, INC.

DERBY, CONNECTICUT

**IN NEW YORK CITY SEPT. 20-22
AT THE KINGSBRIDGE ARMORY!**



A "decade of progress" in packaging and
materials handling. Equipment — materials —
techniques.

Competition—National Championship awards
for technological improvements in packaging
and handling.

Short Course—Outstanding technical program
offered in cooperation with New York
University.

Society of Industrial Packaging and Materials Handling
Engineers — 111 West Jackson — Chicago 4, Illinois.

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JUNE, 1955

**FOR
FAST,
SECURE,
LOW COST
BAG CLOSING**



FISCHBEIN Portable BAG CLOSER

- A truly portable bag closer . . .
Weights only 10½ pounds.
- Requires no installation . . . plug
into any outlet.
- Handles textile and paper
bags.
- Simple to operate and main-
tain.
- Lowest priced bag closer on
the market.

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**FOR DETAILS,
MAIL THIS COUPON NOW
DAVE FISCHBEIN CO.**

Dept. 48
38 Glenwood Ave. N.
Minneapolis, Minn.

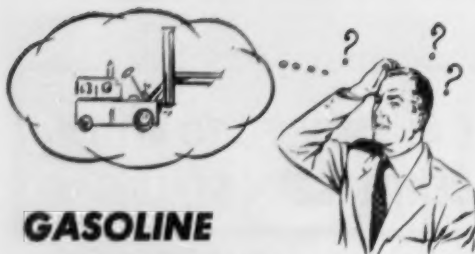
Name

Firm Name

Address

City

State



GASOLINE

OR DIESEL?

HERCULES

OFFERS BOTH

Whether it's gasoline, gas or diesel powered material handling equipment, dependable Hercules power is your assurance of low cost operation and a minimum of "downtime". 70 models ranging from 3 to 500 H.P. provide the right size engine for all material handling powered equipment.

Hercules gasoline and diesel engines of comparable displacement are similar in mounting dimensions and performance. This choice of Hercules gasoline or diesel engine enables owners to use the type of powered equipment most economical to their particular operation.

If you operate fork-lift trucks . . . shovels . . . cranes . . . straddle carriers . . . tractor shovels . . . utility trucks and other material handling equipment or if you plan to re-power old machinery, it will pay to investigate the advantages of Hercules power. There's a "right-size" Hercules engine or power unit for your particular job.

For more complete information on Hercules Engines and Power Units write the factory or contact your local Hercules distributor. Ask for Bulletin SP-136, it gives horse-power ratings, weights and dimensions on Hercules Engines and Power Units.

Engine Specialists since 1915

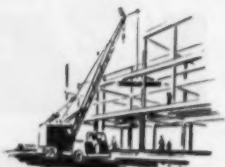
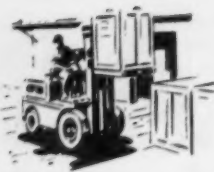


HERCULES ENGINES

HERCULES MOTORS CORPORATION

113 Eleventh Street, S. E. • Canton, Ohio

Circle No. 68 on Reader Service Card for more information



CONTAINERS . . .

(Continued from page 120)

aluminum skins bonded to a basswood core, and are 3/16-inch thick. Thus, containers are tough, yet light.

Recesses at the bottom of the containers and ridges at the tops allow them to be interlocked and stacked vertically. When this is done, the containers form a compact unit load that is easily and quickly handled with mechanical equipment.

The vertical flange on the top of all but the smallest units (21" x 21") is interrupted every 21 inches so as not to interfere with the continuous flanged recess in the underside. Covers are secured by a unique spring latch at the edge of the cover, one for each 21 inches. Latch is part of the cover and cannot be mislaid. Flush handles permit individual containers to be easily carried or shifted.

Each container has a secondary use in addition to transporting and protecting the contents. Containers are readily converted into storage units, filing cabinets, bins, stockrooms, field desks, etc. Collapsible partitioning that is self-supporting and easily assembled and fitted into the modular cases is the key to versatility.

Advantages

Advantages of the Modular Container System are: (1) Unit loads eliminate multiple individual handling. (2) Paper work is reduced. (Only one manifest is required for an entire unit load of as many as 20 individual containers.)

(3) Extremely high strength per weight ratio of containers' material and construction make them particularly suitable for airborne movement.

(4) Convertibility of containers into usable items of equipment eliminates the need to ship such items separately. This feature also eliminates need for separate packing boxes to ship these and other items.

From a commercial point of view, the modular containers are seen as a possible boon to the growth of air cargo shipping. It is pointed out that less handling will mean less labor costs and, in turn, lower air shipping costs.

Floor too light for a 2 ton Lift Truck?

Get a Walkie-Worklifter for those stacking and lifting jobs up to 1000 lbs. in light floor-load sections of your plant. The total weight of the Economy Walkie-Worklifter loaded is less than a ton.

Of course the Walkie-Worklifter works equally well any place in the plant, and all light duty lifting can be handled at much lower cost than with heavy trucks.

The first cost is so low, (\$1148.00 for the 60" lift platform model) that several Walkie-Worklifters can be purchased for the price of a heavy duty machine.

Place a Walkie-Worklifter at every location where light lifting is needed and save the heavy duty trucks with higher operating cost for the big jobs. Anyone that can push a button can operate the Walkie-Worklifter, no training necessary.

Take advantage of this important new Walkie development now. Nothing else like it. Many standard models are available for various requirements or a "special" can be built to fit your particular need. Get complete information; mail the coupon, wire or phone.

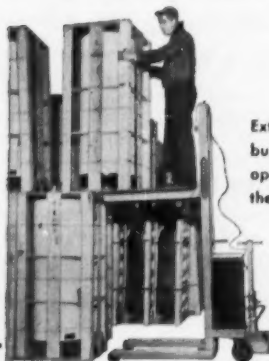
ECONOMY ENGINEERING CO. (Est. 1901)

4524 W. Lake St., Chicago 24, Ill. Phone — EStebrook 8-9110

Eastern Sales Office

342 Madison Ave., New York 17, N. Y. Phone — Murray Hill 2-8940

Representatives in all principal cities



Extension cord with push-button control enables the operator to ride up with the load.



Economy Walkie-Worklifter

Quick Facts

Walkie-Worklifter lifting capacity 1000 lbs. Welded structural steel construction — Batteries and built-in charger included.

Standard platform models have 60" lift — telescopers up to 110".

Straddle type fork models with lift up to 108".

Standard models will pass through doorways and turn sharp corners in narrow aisles.

A safety feature — just let go the handle and it stops itself on the spot with automatic brake.

ECONOMY ENGINEERING CO.

4524 W. Lake St., Chicago 24, Ill.

Attention Mr. Carl Rhodes:

- ☐ Would like demonstration of Walkie-Worklifter in our plant.
☐ Mail copy of bulletin.

MY NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

Circle No. 164 on Reader Service Card for more information



in useful literature

These publications, written by experts, are available. Indicate your choice on the self-mailing Readers Service Card.

Fibre Receptacles:

Trucks, trays and storage boxes, all made of hard vulcanized fibre, are pictured and described in a colorful pamphlet available from the Fibre Specialty Division, National Vulcanized Fibre Co.

Circle 188 on Reader Service Card

Top Running Cranes:

More than a quarter-century of experience with top running cranes is summed-up in a 20-page catalog published by Chicago Tramrail Corporation. Many in-use photos and specifications are included in the literature.

Circle 189 on Reader Service Card

Automatic Tongs:

A four-page leaflet issued by Heppenstall Company features a dozen models of Heppenstall tongs, a motorized hook and a "C" hook pallet lifter.

Circle 190 on Reader Service Card

Tractor Shovels:

Michigan 75 tractor shovels are described and illustrated in a 12-page catalog offered by Clark Equipment Company's Construction Machinery Division. Models for application on all job conditions are described, including an all-wheel drive, a front-wheel drive and a rear-wheel drive.

Circle 191 on Reader Service Card

Push-Type Cranes:

Bulletin prepared by Industrial Crane & Hoist Corp. gives specifications and application data on push-type cranes for light and heavy duty.

Circle 192 on Reader Service Card

Control of Lift Trucks:

If you can increase running time 20 minutes daily, you can save \$400 per truck per year, says The Service Recorder Company in a booklet which shows you why and how.

Circle 193 on Reader Service Card

Industrial Truck Power:

Up-to-date illustrations of modern industrial trucks with the latest material handling attachments are included in a 32-page publication available from the Edison Storage Battery Division of Thomas A. Edison, Inc. Also covered is the unit-load principle and power requirements of industrial trucks.

Circle 194 on Reader Service Card

Portable Elevators—Past and Present:

Revolator Company has prepared an interesting and colorful booklet on the history of Revolator equipment. The manufacturer's progress during the past 50 years is detailed.

Circle 195 on Reader Service Card

Magnetic Ideas:

If you're looking for ideas on how you can incorporate magnets into your operation, Eriez Manufacturing Co. has prepared a booklet covering the subject, and they'd like you to have a copy.

Circle 196 on Reader Service Card

Application Suggestions:

Latest issue of The Lever, published by Lewis-Shepard Products, Inc., features many applications of hand and electric trucks in varied industries.

Circle 197 on Reader Service Card

Bucket Elevators:

If you are designing a new bucket elevator or thinking of increasing the capacity of your present installation, you'll be interested in Link-Belt Company's folder on high speed elevator buckets.

Circle 198 on Reader Service Card

Truck Leasing Info:

The pros and cons of industrial truck leasing are contained in a folder available from The Elwell-Parker Electric Company.

Circle 199 on Reader Service Card

All-Purpose Loader:

Logging, pulpwood and lumbering industries will be interested in a catalog published by Pettibone Mulliken Corp. covering an all-purpose loader. The loader is specifically designed for operation in unpaved, soft areas typical of mill yards.

Circle 200 on Reader Service Card

Modern Counting:

The Denominator Company, Inc. has prepared a brochure which covers what is said to be the simplest and most modern method for counting, tabulating, segregating and recording vital figure facts with accuracy.

Circle 201 on Reader Service Card

Magnesium Facts:

Fabricating, assembling and finishing of magnesium products is discussed in an 8-page pictorial folder prepared by Brooks & Perkins, Inc. Relative weights of common metals are also given.

Circle 202 on Reader Service Card

Motor Buying Info:

Buying information on a-c motors is covered in a 28-page catalog prepared by General Electric Co.

Circle 203 on Reader Service Card

Better Floor Care:

Multi-Clean Products, Inc. tells what you need for better floor care in an 8-page, 2-color broadside. The complete Multi-Clean line is covered.

Circle 204 on Reader Service Card

Caster News:

Darnell Corp. Ltd. has a publication called "Darnell Forecaster". It tells how casters are working for industry to keep equipment and products rolling along.

Circle 205 on Reader Service Card

(Continued on page 166)

FACTS ABOUT Exide®

IRONCLAD® INDUSTRIAL TRUCK BATTERIES



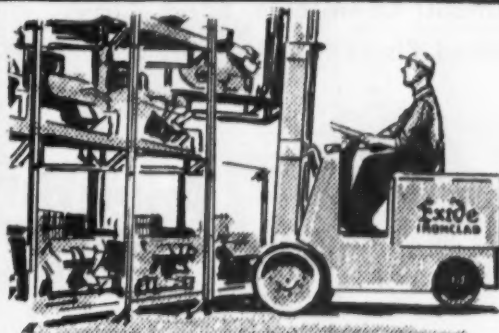
**MOVE TEN TONS
FOR A PENNY!**

...WITH DEPENDABLE EXIDE-IRONCLAD POWER

THIRTY-SEVEN CENTS A DAY BUYS THE POWER TO KEEP AN ELECTRIC TRUCK ON THE JOB ALL SHIFT LONG—MOVING 340 TONS! COMPARE THIS LOW OPERATING COST WITH THAT FOR ANY OTHER TYPE OF POWER. EXIDE-IRONCLADS GIVE YOU A LOW DEPRECIATION COST BECAUSE OF THEIR UNUSUALLY LONG LIFE; MAINTENANCE COSTS ARE ALSO LOW. ADD UP THESE LOW COSTS, AND GET EXIDE-IRONCLADS FOR YOUR BEST POWER BUY—**AT ANY PRICE!**

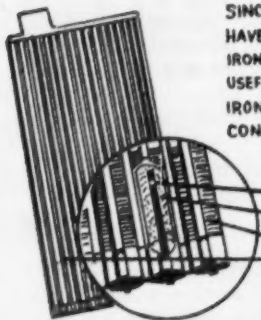
WORKED TO DEATH TO LEARN SECRETS OF LONGER LIFE!

LAB TESTS OF IRONCLADS AGAINST CONVENTIONAL TYPES OF BATTERIES SHOW THAT IRONCLADS GIVE BETTER PERFORMANCE...AND FROM 20 TO 30% LONGER LIFE! THESE TWO FACTS, DEMONSTRATED ALSO BY THOUSANDS OF EXIDE INDUSTRIAL BATTERY USERS, ARE REASONS WHY EXIDE-IRONCLADS ARE YOUR BEST POWER BUY—**AT ANY PRICE!**



**END WORK-SCHEDULING WORRIES...
IRONCLADS STAY STRONG
TO SHIFT'S END!**

POWERFUL IRONCLADS HELP YOU KEEP PRODUCTION MOVING WITH UNIFORM RATE OF MATERIALS HANDLING! THEY KEEP TRUCKS WORKING FULL-SHIFT, WITH NO LAST-HOUR LET-DOWN IN TRUCK POWER OR PERFORMANCE...YOU MAKE FULL USE OF EVERY MAN AND MACHINE, GET MORE WORK DONE!



SINCE 1910, EXIDE RESEARCHERS HAVE GREATLY IMPROVED EXIDE-IRONCLAD PERFORMANCE AND USEFUL WORKING LIFE, BUT THE BASIC IRONCLAD PRINCIPLE OF TUBULAR CONSTRUCTION REMAINS THE SAME.

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COMPRESSED ACTIVE MATERIAL
SLOTTED POLYETHYLENE RETAINER TUBE
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Exide INDUSTRIAL DIVISION. The Electric Storage Battery Company, Philadelphia 2, Pa.
Circle No. 48 on Reader Service Card for more information

(Continued from page 66)

valves. The variety is as infinite as the flow patterns by which each product reaches its completion. The industrial engineer must evaluate each of the methods of manufacture and solve the problem of completing more units at one time.

The answer is generally the simplification and shortening of flow patterns.

Inspection

After completion of manufacturing, modern industry finds it necessary to have a method of controlling the quality and uniformity of a product by standardized inspection of each item. Some industries, producing a small number of parts, require manual inspection by using micrometers, go and no-go gauges, indicators and various specialized equipment. For other industries, where the parts number in the thousands, and the variety is comparatively small, au-

tomatic inspection can be used. Here the operator supplies the parts in proper position on a conveyor, while gauging and inspection is done automatically.

For parts being produced as components of a large assembly, such as for an automobile engine, it is important that each be accurately made to a standardized finish on certain surfaces—so that when the parts are assembled at any particular point in the assembly line, they go into position exactly as required. This necessitates a thorough inspection of each point of fit and surface finish before a part is finally accepted. All of this inspection, both manual and automatic, usually requires a large amount of material handling equipment.

Assembling

The criterion of the inspection system is reached when the parts fit together accurately at time of assembly, and with a minimum amount of rejection. In an aircraft engine, the parts must be machined to within a few ten-thousandths of an inch, permitting bearings to be assembled with proper tolerance. Bored and turned surfaces must also be true, straight, to the correct finish, and of required length. It is the function of the industrial engineer to plan the manufacture of these parts to meet these rigid requirements. All parts are given the correct fit so that the engine, or other machinery, operates on test with a minimum amount of fitting, lapping and running-in.

The flow pattern for assembly of parts comprising a complicated unit is usually in the form of a capitol "E", whereby the parts or subassemblies are fed in at right angles to the main conveyor carrying the basic parts of the unit. At each of the stations along the line, parts or subassemblies are installed to complete the unit. In such instances as automobile manufacturing, the same method of assembly can be applied to the chassis, the body, the drive mechanism and other parts involved.

Testing

Material testing should be considered as another phase of inspection. However, we use it here to refer to such operations as

PULSATING PANELS

eliminate flow stoppage in bins!

If you have trouble moving —
Difficult Chemicals, Sand, Clay,
Wood Chips, Coal or any other materials
from your bins...



PneuBin will solve your flow stoppage problems and reduce your operating expense. The PneuBin unit consists of steel-backed, neoprene, pulsating panels mounted on the inside wall of your present bins and air controls to regulate the panels' action. By the pneumatic inflation and deflation of the PneuBin panels, the bin contents are positively displaced to insure free flow. After the panels have deflated, the air control unit

(operating off the regular plant air supply) starts another cycle of inflation and deflation. The process continues *automatically* at whatever frequency is set on the air controller (this frequency is adjustable).

PneuBin decreases plant operating costs by reducing maintenance, insures constant material flow to production lines and greatly increases personnel efficiency through its quiet operation.

Send for "Flow Stoppage Report" and FREE literature. PneuBin engineers will gladly make recommendations with no obligation on your part.

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frame it with DEXION!

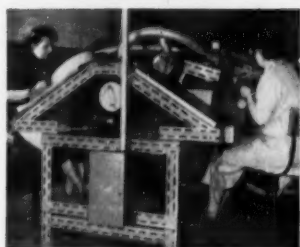
New "DO-IT-YOURSELF" framing material has scores of applications in your plant



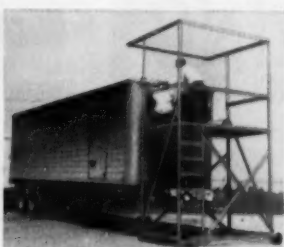
TESTING BENCH



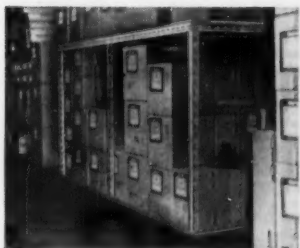
STAIRWAY



WORK BENCH



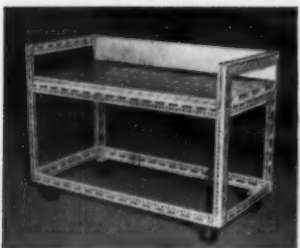
MAINTENANCE PLATFORM



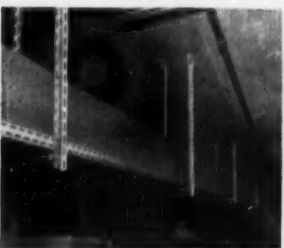
STORAGE BINS



MEZZANINE FLOOR



GOODS CART



FRAMEWORK CONVEYOR

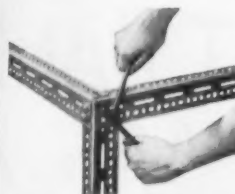
DEXION Slotted Angle is a packaged product, ten pieces to a package, each piece 10 feet long. There are three types, with dimensions of 3" x 1½" x .080"; 3" x 1½" x .104"; 2¼" x 1½" x .080".



Easy to store. DEXION package occupies approximately 1 cubic foot of space.

Here's why you'll want DEXION Slotted Angle over any other framing material

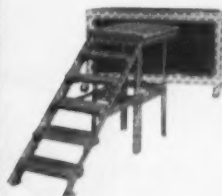
Anyone who can handle a wrench and a saw (or Dexion Cutter) can build with this precision-made, galvanized steel angle. And DEXION is so easy to use or re-use! There's no drilling—no welding—no waste. DEXION is strong and rigid—lasts a lifetime—and the price is amazingly low.



Simple to connect. All you need are two wrenches. No special parts—no training necessary.



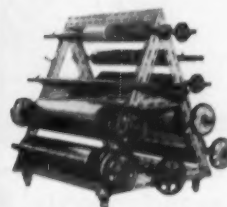
Easy to cut. One down-stroke of DEXION cutter saves time and work.



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Easy to measure. Diamond-shaped cutting marks spaced 3" apart.



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Continued

"running acceptance" or "endurance tests" on assembled machinery or other completed products, when operation under severe conditions must be assured—as, for instance, in aircraft engines.

Testing of heavy machinery is usually an individual operation, somewhat out of the realm of the material handling engineer. On lighter machinery, electrical equipment, electronic apparatus, instru-

ments and other similar finished material (as well as some semi-finished), testing is an important phase of manufacturing that can often be handled with production-line methods to good advantage. Not as much use has been made of high-speed, automatic handling, as it is possible to do. This probably results from the fact that the percentage of time required is small compared to the total manufacturing time.

The packaging of semi-finished and finished materials has been

well-developed by material handling engineers. It has brought a high degree of perfection to such production advancements as automatic weighing, packaging, labeling, sealing, and canning. Industries such as food, chemical, textile, tobacco, and many others, have profited by advanced packaging methods, indicating the possibility for increased production in many other places that have not adopted such methods.

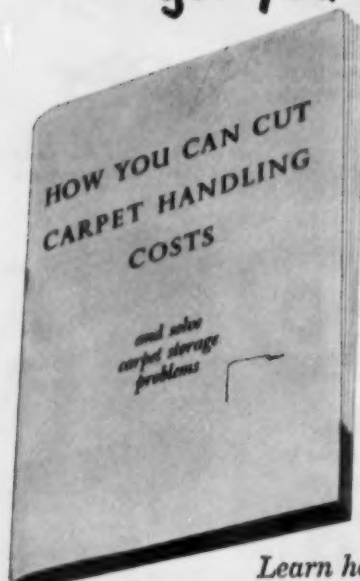
The handling of finished packages or articles, after completion, requires a type of machinery that is, in many cases, self-propelled. Such equipment as lift-trucks, hoists, motor trucks, conveyors and monorails. These are indispensable for storing and shipping finished goods or packages. The storing of materials covers a complete technique of warehousing with its many handling problems. The shipping of all types of materials requires the facilities of railroads, steamships, motor trucks, pipe lines, cranes and conveyors of all kinds. These present endless flow problems for the material handling and industrial engineer.

Continuous Repairing And Overhauling

A new approach to the material handling technology is its application to the continuous repairing and overhauling of large, complicated mechanisms such as transport planes, bombers, passenger automobiles, trucks, locomotives, rolling-stock and many other similar units. Take, for example, commercial transport planes that require periodic overhauling, inspection and repairs. With a suitably arranged facility, planes can be taken through the hangar space on a production line basis. They can be inspected, partially dismantled (as found necessary), cleaned, repainted, reassembled, tested, reinspected, and finally taken out to the flight line for return to service.

Here again, construction can be integrated with material handling to produce efficient flow patterns. In this example, the parts and subassemblies removed from the planes are taken to the various repair departments and arranged

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in a line parallel to that along which the plane itself moves through the hangar space. The sub-assemblies are overhauled, rebuilt as parts are reviewed, tested and inspected. Each is then returned to the hangar space to meet its plane as the latter moves down the production line. All of this requires planning and preparation before the plane arrives at a particular station so that the correct subassembly is there to meet it, ready for installation.

The railroads have done this for years in the maintenance and overhauling of locomotives, box-cars, gondolas and passenger coaches with great success. This continuous overhauling technique is particularly adaptable to rolling stock, but it fails when there is an excessive diversity in complexity of the units. For example, locomotives, whether steam, electric or diesel, are much more complicated than, for instance, passenger coaches. These cannot be overhauled in the same facility. The locomotive usually has a boiler to be partially retubed, fire-box patched, auxiliaries replaced or rebuilt, new engine cylinder liners to be installed and a myriad of other repairs that take more time than rehabilitating a passenger coach. The flow patterns may be similar but the rate of flow is different for the two types.

Present Status Of Material Handling

The classification of material handling problems has been based on the kinds of material being produced and the types of operations performed in their production. In the next, concluding installment, an attempt will be made to indicate briefly the present equipment now available for performing the handling operations required in the production of basic materials and the flow patterns by which the most efficient results can be achieved. In addition, and from a personal viewpoint, ideas will be set forth dealing with the most likely lines along which future developments in the material-handling art will progress in the next few years, while advancing horizons of increased efficiency at reduced costs of operation.

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AUTOMATION . . .

(Continued from page 71)

and more trouble keeping up its ability to increase the over-all productivity proportionately.

In the material areas meanwhile there are, happily, several factors spurring automation.

There is already an opportunity for the benefits of automation to be extended into almost all kinds of business—large, small and medium-sized. The extent to which it

can be applied economically is determined not by the size of the business but rather by the volume and nature of the individual end-products or particular components manufactured. And the price tags on automatic machines go from above one million dollars to as low as fifteen hundred dollars.

We can expect the innovations in automation by the few to continue to be quickly spread to the many. Sometimes this results from competitors who are quick to imitate or copy. Sometimes the in-

novators themselves teach their subcontractors the know-how of the new model or process.

But always, in our enterprising economy, the actual or potential innovation of a new product or process by one company just provokes its competitors to try to innovate another new process or product to do the job as well and then better.

And we ought, incidentally, to be sophisticated enough to recognize that the culprit in the woodpile is not automation but this current buyers' market. After fifteen years of easy selling and easy work, we are *all* uncomfortable at the public's sudden demand that we go back to work and find ways to give a value that will tempt the extra purchasing which is amply available to push our production on up an ever-mounting scale. So, managers are sitting up nights with their plans and costs. Engineers are sitting up nights with their designs. Purchasing agents are making salesmen sleepless. Supervisors are trying to reduce waste. And workers are cutting out the turnover and absenteeism and showing a new interest in what makes and keeps jobs good. And too few of us yet like what additional work each of us is being called on to do for our boss—the buying public. But in this kind of weather, only the blind will fail to see the fallacy of raising costs through any "spread the work" campaign—or even any "delay the improvement" campaign.

Why Does—And Must— Business Automate As Fast As Possible?

Automation simply seeks to take more of the work out of work . . . to reduce still further the manual effort and human waste rendered needless by the degree of our technical advance at any given time . . . to free human effort for application to the still remaining and usually higher order of functions not yet possible or feasible to mechanize . . . and to lower the cost of given items to customers and thus raise their buying power to satisfy their ever-expanding wants with additional items.

The urge for survival, growth, strength, profit and usefulness—in

Everything in place!

"A PLACE FOR EVERYTHING"

Use Pak-N-Stak a durable, drawn, lightweight, leak-proof container.

Automation in today's industry requires fast, efficient materials flow to and from the production machines. Pak-N-Stak does this job well.

- Lowest price pan of its type on the market.
- Note the side taper allowing full nesting.
- Full rolled edge for maximum safety in handling.
- Designed to stack—contents remain visible for identification.
- Over a million Bathey containers used by industry today.



17 PANS NESTED



SPECIFICATIONS

Length	18 1/4"	Depth	5 1/2"
Width	10 1/8"	Shipping Weight	5 lbs.

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the face of temperate and intemperate competition—is what spurs business to automate as fast as feasible. Technological advance gives the customer lower costs, higher quality, greater quantity and broader variety of products and services. The business which fails to keep in the front row of pioneers of such advances soon finds it has lost its customers and jobs to the one that stays up front.

What May People Be Persuaded To Fear?

There has always been resistance to change, fear of the unknown. New machines have always been distrusted—until the favorable facts at last become widely known.

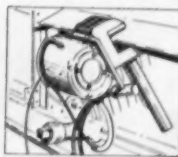
An 1830 propaganda cartoon on our office wall shows all the dire disasters to be expected from the introduction of steam power in factories. It even goes so far as to recommend that mothers bear no more children since steam would take away any possibility of jobs for them.

At the turn of this century, the motor car was questioned by most sober people—and seemingly feared or hated by almost as many on both economic and moral grounds. The automobile now gives us the world's largest industry—and hundreds of times the jobs which the harness, coach, and buggy-whip factories supplied. We have even forgotten how we distrusted that great labor and accident saver, the self-starter, when it was introduced.

It would have been permissible for anyone to expect that the dial telephone was going to eliminate operators and cut telephone employment. Just the opposite has happened, of course, because the dial savings made it possible to increase the value and attractiveness of the service and to bring on the great expansion in the installation and use of phones that has occurred—so that in just the last ten years the number of telephone operators in this country has increased by 79 percent.

The Short-Term False Alarm

This is not to say that there *might* not occasionally be a relatively few *short-term* displace-



shake-out

60 cycle, 3 phase,
110 to 550 V.

Clamp force, 10 ton.

smooth and easy!

Vibro-Plus Shake-Out saves time and money unloading covered hopper cars. Shake-Out Vibrators are lightweight, need no special brackets, and feature one-man operation. The Shake-Out unit includes a jack-operated hydraulic clamp for rapid, sure attachment to hopper flanges. Shake-Out assures an even flow of materials into screw or air-slide. Shake-Out Vibrators are dust-proof, fool-proof, non-magnetic and tough. For information, write

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AUTOMATION

Continued

ments, here and there, from the automation process itself—even though the gloomiest detractors of automation are finding it hard to uncover any really convincing evidence of such displacements.

The immediate result sought from the automation process is a reduction in relative cost and a resulting more attractive competitive offering to customers. The employer is likely to get more business as a result of the more attractive offering on the item automated—and hence retain or increase employment even though there are fewer employees per new unit of output.

On the other hand, his customers may not want more of this particular item but will apply their new savings to additional purchases of other kinds of goods from other makers. Then, in the absence of sufficient natural attrition of the work force employed



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FLOW

on that item, there may be temporary layoffs by this particular employer—unless he has a large and varied local operation in which there are other openings as a result of the turnover or expansion in the rest of his lines there.

But, in any event, the employer must automate to stay alive and to keep all or the bulk of his jobs alive—and he can only automate if he gets his costs down appropriately. If he tries to keep on the payroll people he does not need, his costs are too likely to prevent him from meeting competition and from supplying *any* jobs at all. So it is imperative to the rest of his employees—as well as to him and all others concerned—that he remove from his payroll any substantial surplus of employees not needed.

Fortunately, there are two alternatives for any such few that might be temporarily displaced.

The first is that—as history shows—any such displacements can normally be expected to be quickly absorbed in the new jobs created as the new savings go into added purchases. (Incidentally, job opportunities have grown fastest in industries like ours where technological progress has gone forward the fastest.)

Second—if the times are such that some general unemployment interferes temporarily with this reemployment—the employer has provided out of his funds alone an unemployment compensation which is set at the proportion of the employee pay that is judged appropriate by the citizens in each state, through their legislatures there. For those employees at the lower end of the earning scale—these are the ones most likely to experience the few displacements that may occur—the benefits tend to go up to around 65 per cent of their normal take-home pay and to last for as long as a half year.

What Automation Means To Our Country

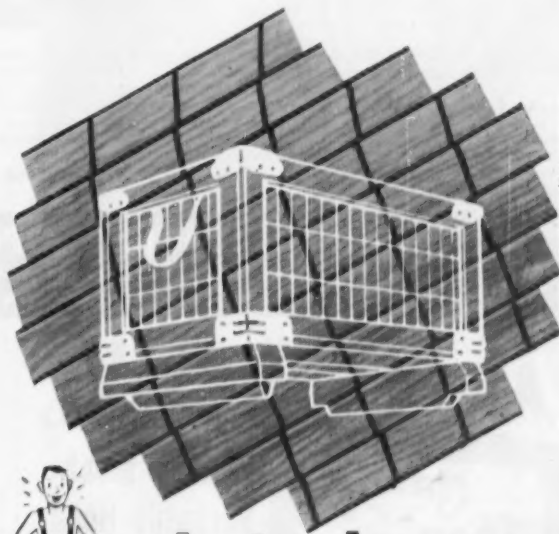
Government takes about a fifth of our country's entire output and uses most of it for past and future wars. This pays for such protection as we can buy against bad neighbors. But, of course, it adds nothing to our level of living.

Automation enters the picture

to help us in three important ways:

First, automated military products—like gun directors, guided missiles and many other such devices—are essential to the country's security from enemies abroad and to the country's well being here at home. Such automated products not only reduce the need for and dangers to human soldiers but also do things soldiers could not do. And these products obviously free more people for work that is productive of a higher level of living.

Second, the work force which is left for jobs that contribute to our level of living obviously needs all the arm-lengthening equipment and methods which can contribute toward the greatest possible output from these remaining workers. We will live better—as well as being more secure—in just the proportion that technology advances to help that portion of the work force which is producing what makes up the level of living for the whole. Moreover, we are living in a decade during which high birth rates



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The power plant is the 4-cycle single-cylinder, 6 hp. AKN model. It combines heavy-duty lugging power with compactness . . . minimizing the problems of the design engineers. It also offers such features as tapered roller bearings at both ends of the crankshaft, fool-proof air-cooling and rugged construction throughout . . . to deliver the kind of dependability users expect to get. And the Wisconsin's easily serviced OUTSIDE magneto with impulse coupling delivers quickest, any-weather starts and stendiest performance always.

Write for details about all 4-cycle single-cylinder, 2-cylinder and V-type 4-cylinder models, 3 to 36 hp.



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MODEL NO. 4034

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AUTOMATION

Continued

and low death rates are pushing our population to record levels. This is at exactly the same time that the growth in our work force is retarded both by the low birth rates of the 1930's and by today's high level of living which enables younger people to stay in school longer and older people to retire earlier. As a result, our population is increasing at a rate that has been variously estimated to be anywhere from 50 per cent to 100 per cent faster than the rate of growth in our work force. Thus output per employee and his machine will apparently have to grow substantially just to maintain our levels of living. If we want to increase our levels of living by the same rate as we did in the 1940's, the combined output of the average employee and his machine may have to go up by something like 40 to 50 per cent over-all in the next ten years, as compared with an estimated 21 per cent increase

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ENGINEERING COMPANY

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A new racking system that's so simple you'll find it hard to believe, yet...so cheap, it is by far the lowest priced rack you can build! Use ordinary pipe— get all the features of the most expensive rack! WRITE for illustrated brochure.

Distributor inquiries invited.

TUBE-STRUT DIVISION
TUBULAR STRUCTURES CORP. OF AMERICA
3129 RIVERSIDE DRIVE
LOS ANGELES 27, CALIFORNIA



... with Electric Hoist-O-Matic Model 1000. NEW, "One Package" design with complete power unit in base of hoist simplifies installation and service. Compactly arranged for trouble-free service. ONE MAN OPERATION . . . Hoist-O-Matic push-button control lets one man do the job of 2 or more. Operator has safe, positive control at all times. Loads up to 1000 pounds are handled with speed and ease. Four foot boom revolves 360°. Only 18" x 23" of truck bed with 5 mounting holes is required for installation. The truck driver alone efficiently handles skidding as well as hoisting operations.

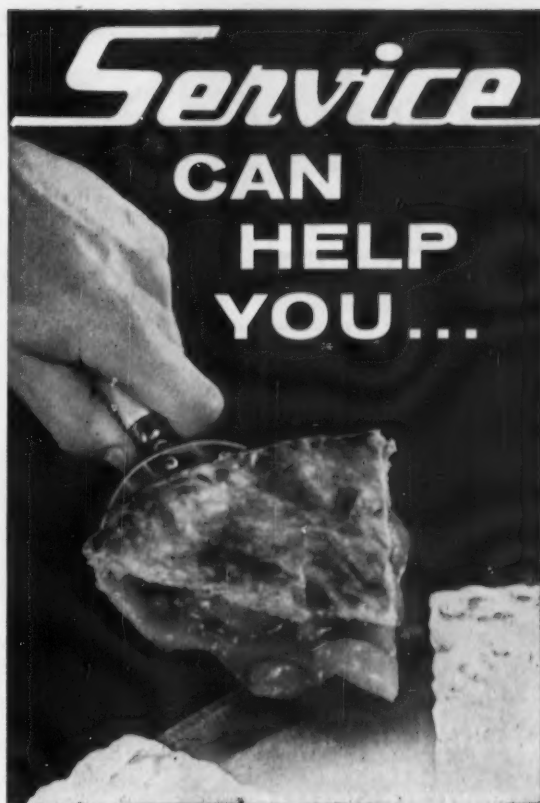
Write for big "money saving" details today!

Manufacturers
Agents and Dealers
Inquiries Invited

Hoisters
INCORPORATED

1913 Broadway • Kansas City, Mo.

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JUNE, 1955



CUT A BIG SLICE Out of Your Operating Costs!

Handling costs average 30% of total manufacturing cost in most industries today! To meet current competitive conditions, manufacturers are analyzing their handling operations to cut costs wherever possible. Almost without exception, the answer to the problem is found through the use of automated production handling equipment.

Service Conveyor Company can help you determine how you can cut handling costs in your operation, and *how far* it is practical and profitable to go! Drawing upon our twenty-five years of experience in the field of practical automation, we can engineer, manufacture and install automated facilities that will meet your specific requirements.

Service-engineered automation does not mean installing all new equipment. We utilize your existing facilities, supplementing them with the additional equipment required for automated production flow. At your request, a Service engineer will gladly visit your plant, and discuss your production problems. There's no obligation. Write or phone today.

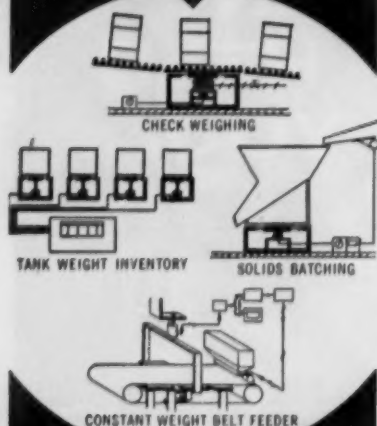


SERVICE CONVEYOR CO.

7764 BRYDEN AVENUE, DEPT. 36
DETROIT 10, MICHIGAN

Engineered Automation—Ideas, Methods and Experience
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W/C Electric Weigh Scale



**...complete
...self-contained
NEEDS NO
ENGINEERED INSTALLATION**

- Up to 10,000 lbs. gross capacity
- Guaranteed accuracy of entire system
- No effects from vibration
- No springs, levers, or knife edges
- Expert design of structures and circuits to fit individual requirements

Here's a system for batch or continuous process control that assures accurate net weights automatically, regardless of fluctuating tares. Electrical strain-gauge load cells of long-recognized accuracy are freed, through W/C pneumatic tare compensation, to respond only to net weights, thus using their effective range to measure only the variable controlling the process. Feeding belt conveyors, recording, and controlling raw materials inventory, weighing finished packaged products to within 0.15% of gross — these typical applications of the W/C Weigh Scale should stimulate your imagination.

Find out how a W/C Electrical Scale can cut your process time and increase yield — inexpensively — by writing for Catalog 20.

WEIGHING COMPONENTS, INC.

64-L Fulmer Ave. • Hatboro, Pa.

AUTOMATION

Continued

during the 1940's when our work force and our population were in a more normal balance.

Third, we face a shortage of venture capital despite the much-publicized, current activity in stock market transactions. According to the Joint Congressional Committee on the Economic Report, by 1965 the capital needs by business for plant and equipment will be almost 60 per cent over that for 1954.

Since automation promises to increase the productivity of both labor and capital, it offers our brightest hope for meeting these two shortages which are expected to be critical in the next ten years.

What Automation Means

Our whole business is in pleasing people at a profit—through taking work out of their work. This goes for turbines and toasters, jet engines and atomic power,

Circle No. 160 on Reader Service Card



NO SCRATCHES WITH STILSON ROLLERS

The original STILSON all-neoprene molded conveyor rollers have even density throughout insuring uniform wear. For die lifters, hydramatic welders, gravity roll conveyors, idlers on belt conveyors, many other uses. Provide cushioned, quiet, scratch free, dent free rides for finished stampings, panels, glass, plexiglass, stainless steel and other materials.

FIVE MODELS—THREE DENSITIES

4" DIA.—
2" WIDE
2 1/2" DIA.—
2" WIDE

DUAL BALL
BEARING ALLOY
AXLE—SELF
LOCKING NUT

**ALL PARTS INTERCHANGEABLE
STILSON TOOL, INC.**
30229 GROESBECK HWY.
Phone Prescott 8-2010 Roseville, Mich.

"IT'S DUCK SOUP!"

LOADIN' BARRELS

WITH THE

"Float-away"

BARREL AND DRUM TRUCK

**NEW
1955
MODEL**



"Amazing Performance"

say thousands of "Floataway" users. Yes, the original "Floataway" is still your best buy for barrels and drums, and the new 1955 model is better than ever! Quick and easy loading, because you don't have to lift wheel and axle assembly—they never leave the floor in loading process. Stands by itself when not in use. Equipped with DICO "HD" indestructible, steel, "molded-on" rubber tired, roller bearing wheels. "Bilged" or straight-sided barrels handled with equal efficiency.

**SEE YOUR LOCAL JOBBER
OR WRITE FOR CATALOG**
DICO ALL-STEEL TRUCKS
For
**MAXIMUM STRENGTH
and LONGER WEAR**



DICO

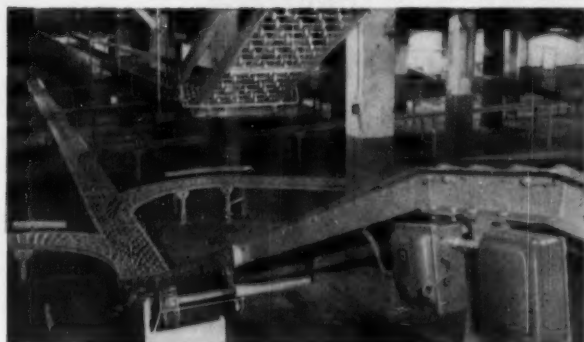
DES MOINES 5, IOWA

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160

Circle No. 44 on Reader Service Card for more information

FLOW

Circle No. 52 on Reader Service Card for more information



Farquhar Conveyor System installed at Piggly-Wiggly Midwest Co., Rockford, Illinois.

Here are two fully integrated materials handling systems that illustrate how Farquhar Power-Belt and Gravity Conveyors are engineered to effect savings in a wide variety of bulk or package handling problems. Farquhar is a good buy for you, too. It will pay you to get the facts now!



Farquhar Conveyor System installed at York Container Company, York, Pennsylvania



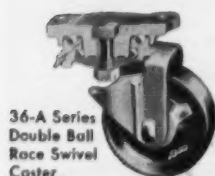
A. B. FARQUHAR DIVISION

THE OLIVER CORPORATION

Conveyor Dept. E-06
York, Pa.

618 W. Elm St.
Chicago 10, Ill.

Write for Bulletin Nos. 400 & 401
covering Farquhar Power-Belt and
Gravity Conveyors.



36-A Series
Double Ball
Race Swivel
Caster



1-A Series
Stationary Caster



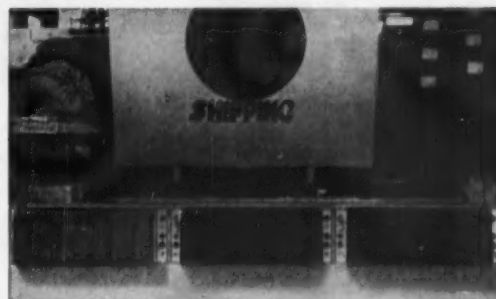
Dual Wheel
Swivel Caster

The pelican's materials handling problem was a tough one... but Nature solved it with a big bill. You can solve your toughest materials handling problems without a big bill when you specify Bond "Built-For-The-Job" Casters. Bond Casters are your best buy for dependability, economy and trouble-free service.

See your industrial distributor—he has the right Bond Casters built-for-your-jobs.

**BOND FOUNDRY
& MACHINE CO.**
MANHEIM, PENNA.

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JUNE, 1955



Save DOCKS and TRUCKS

DURABLE resilient rubber Loading-Deck Bumpers absorb the BUMP when truck and dock come together—

- Prevent damage to truck bodies.
- Eliminate replacement of dock timbers.
- Protect fragile freight—reduce claims.
- Easy to install.

DURABLE products will save you money.

DURABLE
MAT COMPANY

75 North Pleasant St.
Norwalk, Ohio
2926 16th St., S. W.
Seattle 4, Wash.

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Any Way You Figure It...

**STERLINGS
COST LESS PER YEAR**



You want to reduce your material transport costs? You can do it easily with Sterling Wheelbarrows. They are engineered and built for the tough jobs. All steel . . . all welded . . . no rivets . . . barrows so ruggedly constructed, they seem to last forever. The unusually long service life of Sterling Wheelbarrows protects your initial investment. And maintenance costs are almost nil. Compared to other barrows, Sterlings actually cost less per year. Get the facts. Write for catalog.

**IMMEDIATE
SHIPMENT**

DEALERS: Ask about our liberal dealer selling plan.

*Costs Less
per Year*

Look for this Mark of
STERLING Quality

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

Sterling
WHEELBARROWS

**moves bulk materials
inexpensively
...quietly
...rapidly**



**G-W
OSCILVEYOR**
the VIBRATING CONVEYOR
THAT PUTS ALL VIBRATION TO WORK!

Here's the most inexpensive, practical way to move most loose bulk materials—at speeds up to 50 ft. per min. G-W Oscilveyors as long as 100 ft. powered by one drive unit! Three drive weights—for better distribution, smoother running. All vibration put to work by heavy duty reciprocating springs and new-design rubber-cushioned rocker arms. If a vibrating-type conveyor fits into your picture—don't buy without seeing G-W Oscilveyor first! Write today.



GIFFORD-WOOD CO.

HUDSON, N. Y. AND PRINCIPAL CITIES

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AUTOMATION

Continued

television and electronic controls, and the rest of our thousands of products.

Thus every order our salesmen get—and every resulting job our employees enjoy—depends on two things. First, a customer must have wanted *somebody in our industry* to save him work. Second, we must have persuaded that customer it would be *best for him* to let General Electric do the job he wanted *somebody in our industry* to do.

Customers are expected to *double* their demands on our industry over the next ten years. What they will want will all be *mechanical power and control* to serve our country's growing needs and wants . . . to cut out needless use and waste of human effort in doing so . . . and to raise our level of living by enabling each of us in the work force to do more for the other with a given application of skill, care and effort.

**Moving or Storing is Rapid, Convenient
and Inexpensive with
IRONBOUND SEMI-LIVE
SKID PLATFORMS**



Ruggedly built with capacities up to 2500 lbs. These units are quickly made mobile with the use of low cost lift jacks . . . One of the methods that Ironbound engineers use to increase production and conserve space at low cost.



SEMI-LIVE SKID WITH BOX TOP

. . . permanently attached or removable. Also available with many other superstructures to "Short-Haul" your products thru production or into storage. Useful in hundreds of spots in every plant.

THE IRONBOUND "SAFETY-SKID" WITH ROUND CORNERS

Ironbound construction assures long hard use with complete safety to product and operator. Still the time proven method for handling of materials efficiently and economically.



IRONBOUND

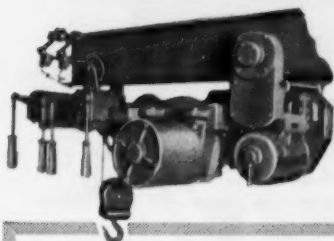
IRONBOUND
BOX & LUMBER COMPANY
Materials Handling Division
30 HOFFMAN PLACE • HILLSIDE, N. J.

MANUFACTURERS OF QUALITY BUILT SKIDS, SEMI-LIVE SKIDS, FLOOR TRUCKS, ROLL TRUCKS, DOLLIES AND PRY BARS
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FLOW

Circle No. 49 on Reader Service Card for more information

time-saving... manpower-saving



ELECTROLIFT WORM DRIVE HOIST

One man can handle up to six tons quickly and safely with an ElectroLift Worm Drive Hoist. A dependable, long-lasting ElectroLift Hoist pays for itself many times over, with savings in time,

power and labor. Available in a wide variety of models—trolley drive or manually operated.

For full details call your ElectroLift representative listed in the telephone directory.

ELECTROLIFT

ELECTROLIFT, INC., 204 Sargeant Ave., Clifton, N. J.



MERRILL LIFTING CLAMPS

**THE HEAVIER THE LOAD
THE TIGHTER THE GRIP**

Safer and Speedier Lifting at Less Cost...have made MERRILL Vols LIFTING CLAMPS the choice of large Steel Mills everywhere.

SAFER

- Safety factor of 3 to 1
- Factory tested at double rated capacity.

GREATER SPEED AT LESS COST

- Entirely Drop Forged and Heat Treated.
- Working parts entirely enclosed.
- Pins do not rotate in frame eliminating wear.

Available in Stainless Steel.

Sold by Better

Distributors Everywhere.

**MERRILL
BROTHERS**

56-74 ARNOLD AVENUE
MASPETH, N. Y.

Producers of DROP FORGED
SHACKLES, CLEVIS NUTS, TURN-
BUCKLES & EYE BOLTS.

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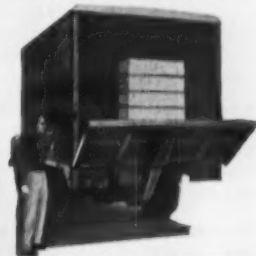
Faster, Safer Deliveries with 50% less cost!

The new St. Paul Hydraulic Frate-Gate — with full power closing — makes it possible for *one man* to load and unload your trucks *faster, more safely* than 2 or 3 "muscle-men". Use of Frate-Gate cuts labor costs, practically eliminates need for chain hoists, lift trucks, and other special equipment. Unit easily raises 2000 lbs. from ground to truck platform level in seconds . . . sets load down quickly, gently. Handling time is cut in half . . . you make more trips per day, with less danger of injuries to men and cargo.

One double-acting hydraulic cylinder powers all operations . . . lifting, lowering, closing and opening. Heavy-duty lift-arms prevent sagging or distortion, even with off-center loads. Control is made by one of two identical levers, one located at each side of your truck. Operator never has to work on traffic side. Gate stops instant either lever is released. Entire mechanism is mounted *above* axle.

Frate-Gate mounts on any truck — one ton and up — costs less than 50c a day to own and operate. Send coupon for more facts now. No obligation.

Frate-Gate adjusts to any dock height. Simple, compact design means less weight, less maintenance.



St. Paul
HYDRAULIC
Frate-Gate

St. Paul HYDRAULIC HOIST

Customer Service Dept. 36142 Main St., Wayne, Mich.

Division of Gar Wood Industries, Inc.

☐ Send folder on elevating FRATE-GATE

Name

Position

Company

Address

City State

SP-FG-4

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GRIPPER

WOVEN WIRE

SLINGS

FOR EASIER AND SAFER

handling
or processing



EXTRA BROAD bearing surface gives greater strength, stability and maneuverability . . . even while moving heavy, bulky loads from point to point or through processing operations. Use either **BASKET** or **CHOKE HITCH**.

ONE MAN can fasten the load and operate the hoist. No fighting with kinks or tangles. No dangerous whipping or snarling of loose ends. Smooth woven wire construction eliminates sharp loose strands.

COMPLETE FLEXIBILITY gives greater gripping power around even the smallest loads . . . lets you store Gripper Slings in compact coils or hang them perfectly flat on the wall. All-metal construction means long life, freedom from damage even by sharp edged loads.

AVAILABLE in standard lengths and widths with capacities up to 100,000 lbs. Special sizes on request. Every sling **PRETESTED** to meet loading specifications.

See your materials handling or mill supply distributor. Or, write direct for **FREE** catalog and name of nearest distributor.



**The Cambridge
Wire Cloth Co.**

Dept. W • Cambridge 6, Md.



WIRE CLOTH METAL CONVEYOR BELTS SPECIAL METAL FABRICATIONS

OFFICES IN PRINCIPAL INDUSTRIAL AREAS
DISTRIBUTORS—write for open territory data!

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164

Work Positioners Minimize Effort, Machine Idle-Time

Although extensive automation readily indicates efficiency at Ford Motor Co. stamping plants, it is at individual machine operations that much of the firm's efficiency has been achieved. For every major body part produced, hundreds of smaller stampings must be turned out, processed, assembled—and handled.

Efficiency at such machines is based upon the premise that material handling containers must be both filled and emptied with minimum operator effort—and with the least possible machine idle-time. To accomplish these results, a two-unit container system is widely used. It consists of a drop-bottom box with positioning stand to provide operators with a continuous supply of parts at work-level position. The equipment incorporates an adjustable control gate and removable tray-end (for clean-up).

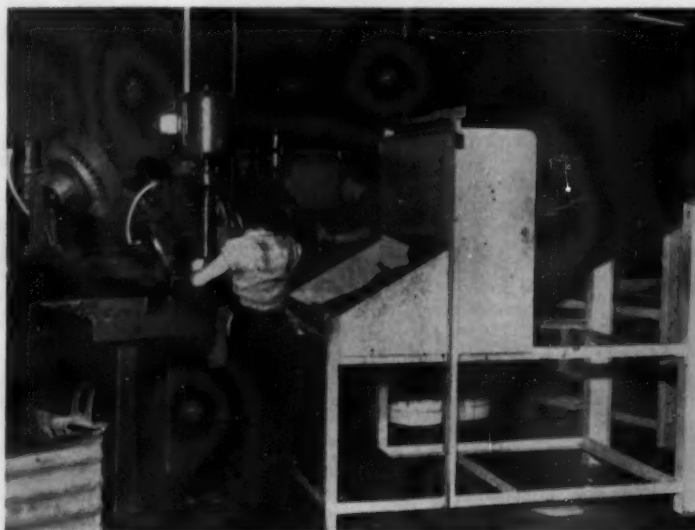
The Stamping Division uses the equipment at such operations as punching, drilling, tapping and welding. For example, two of the combinations feed a continuous supply of fender brackets to a welding machine operator. He picks brackets from stands positioned conveniently at his right and left, welds pieces together, and tosses the assembly into a third box on the floor. He has a continuous supply of parts because the tray of each stand holds 25 percent of the box contents. This is more than enough to keep the operator occupied while an empty box is replaced.

A fork truck sets the box on the stand from either side or the rear. As the driver withdraws his forks, the hinged bottom of the box drops, and parts flow into the tray of the stand.

Machine operators have been freed from the fatigue of stooping and stretching to reach for parts. As a result they work more comfortably—and safely.

The system serves in the Stamping Division's production changes. Machine operators remove the tray-end from a positioning stand to speed job finish-off and free the stand for another assignment. Fork truck drivers shift stands from one machine to another. Contents of one box are drop-bottom dumped into a second box, thus avoiding the inefficiency of partially loaded containers. Fully loaded boxes may be tiered for in-process storage of parts.

Photo courtesy Union Metal Manufacturing Co.



RELIEVED of tiresome stooping and bending, operator stamping out door hinge anchors works comfortably, efficiently, and safely.

FLOW

Join the many firms Speeding Production and cutting costs . . .

PUT SPEEDWAYS ON YOUR PRODUCTION TEAM

the new **SPEEDLIFT**

**ALUMINUM
GRAVITY WHEEL CONVEYORS**



- elevates from either end
- versatile
- lightweight
- adaptable



Speedways versatile portable power belt conveyor loads, bridges, unloads, stacks and acts as a conveyor line booster or assembly line unit . . . all with the same consistently high degree of performance. Either end elevates from controls at the center to a 30° incline, and it can be set horizontally from 22 inches to 5 feet off the floor. SpeedLift will go anywhere in your operation and one man can do all the work of moving, adjusting, setting-up or storing it.

Built to give long years of service, lightweight SpeedLift's features are usually found only in the most expensive equipment! Yet, SpeedLift is priced amazingly low.

SUPER

**Light
Portable**



Stronger, lighter, more adaptable than steel, Speedways Aluminum Gravity Wheel Conveyors save you money because one system will do double-duty throughout your plant. They are made from high-quality aluminum alloy which permits a live load of 850 lbs. per 10 lineal feet . . . and the smallest man in your plant can move them wherever needed. Adaptable to a variety of uses, Speedways Aluminum Gravity Wheel Conveyor's non-sparking frames help reduce fire hazards — make for better house-keeping, and because they are rust-proof, may be used outdoors in all weather.

These important performance features add up to big savings in your production set-up . . . savings in cost . . . labor . . . time.

There is a Speedways Conveyor to Suit All Your Needs

Let the Speedways Conveyor line be the answer to lower production costs. See your nearest Speedways Distributor soon or write:

SPEEDWAYS Conveyors, Inc., 202-208 Rhode Island Street, Buffalo 13, N.Y.
IN CANADA: Speedways Conveyors Ltd., 61 Walnut Street, Fort Erie, Ontario

How To Save Money on your dock handling operations



84 Models To Meet Your Requirements

■ You're bound to lose efficiency, pay more than is necessary, when you purchase a dock levelling device that isn't specifically designed for your dock handling requirements. That's why Rowe Adjust-A-Docks are available in 84 models. There's one that will meet your specifications no matter what the problem. They can be installed recessed in your dock, partially recessed, or installed in front of the dock.



Write for free, illustrated brochure. It's brand new.

ROWE METHODS, INC.

2534-C DETROIT AVE. • CLEVELAND 13, OHIO

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JUNE, 1955

PREMIUM MATERIALS • CUSTOM DESIGN
SUPERB WORKMANSHIP

JAKES

America's Finest
Industrial Trucks and Trailers



MODEL 1225

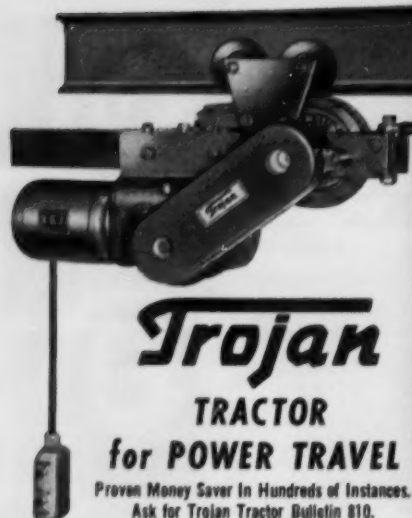
JAKES FOUNDRY COMPANY

Established 1891

2800 Charlotte Avenue

Nashville 9, Tennessee

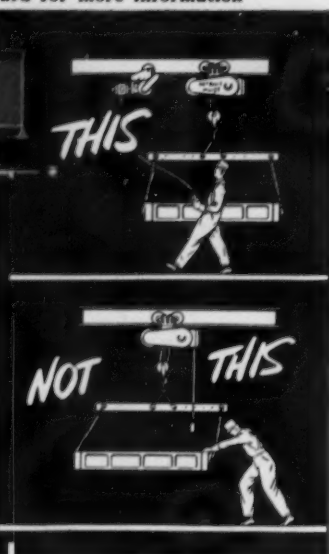
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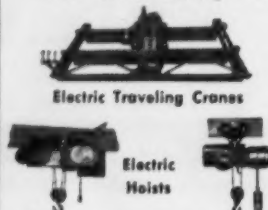
Make your hand pushed hoists and cranes power traveled. Eliminate slow pulling and pushing drudgery. Speed up handling, save time, increase production, reduce costs. Simply attach a Trojan Tractor; inexpensive, quick delivery. Order one today.

DETROIT HOIST & MACHINE CO.

8210 Morrow St., Detroit 11, Mich.
Hoist, Crane & Tractor Designers & Manufacturers
Since 1905



Also ask for the
Detroit Hoist & Machine Co.
New General Catalog 795



USEFUL LITERATURE . . .

(Continued from page 148)

Weight and Force Measurement:

Load cells and load beams for electrical measurement of weight and force are presented in a 20-page bulletin by Baldwin-Lima-Hamilton Corp. Included in the bulletin are principles of measurement, specifications of load sensitive devices, available instrumentation and typical applications.

Circle 206 on Reader Service Card

Hollow Shaft Motors:

Construction features of open type vertical hollow shaft motors for outdoor service are described in a bulletin released by Allis-Chalmers Manufacturing Company.

Circle 207 on Reader Service Card

Electric Truck Specs:

Specifications and aspects for efficient operation of the new Yale electric, stand-up, hydraulic lift truck are contained in a bulletin published by The Yale & Towne Manufacturing Company.

Circle 208 on Reader Service Card

RE-NU TOP
STEEL-BOUND
SKID PLATFORMS



500 LB. LOAD UP TO 10 TONS

Designed to fit your loads and equipment. Plain bolted construction for use with hand lift trucks or bolted and welded under frame with armored ends for rough handling by powered trucks. Special purpose skids can be equipped with end racks, shelves, stake pockets, crane hooks, rounded corners and other special features.



LANHAM
SKID CO.

DIVISION OF THOMAS TRUCK & CASTER CO.
588 On the Mississippi River Keokuk, Iowa
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Weigh it as you Lift it

with the
MARTIN-DECKER
Lift Truck Scale



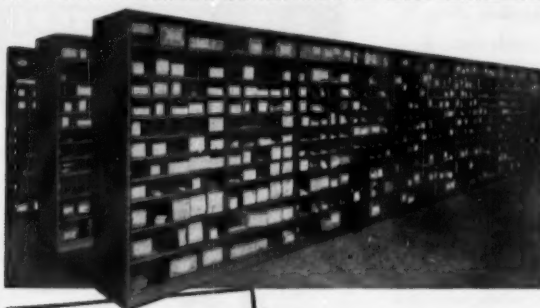
FITS ANY HYDRAULIC-CYLINDER-TYPE FORK-LIFT TRUCK

This inexpensive device shows the driver the exact weight picked up, thus assuring a full load with safety. It can be used to totalize loads and check records of stock and inter-plant storage. Permits floor weight distribution. Prevents elevator overloads. Safeguards equipment and life.

For prices and descriptive literature write Martin-Decker Corporation, 3431 Cherry Avenue, Long Beach 7, California, Department M-7.

MARTIN-DECKER CORP.
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FLOW

Circle No. 11 on Reader Service Card for more information



FREE
LAYOUT SERVICE
for all
storage needs

Trained Equipto engineers will lay out your storage facilities . . . suggest the number and types of units you will need . . . assure maximum use of every inch of floor space . . . increase working efficiency by expert arrangement of units. Take advantage of this free service. Ask our engineer to call, or write for catalog on complete line.

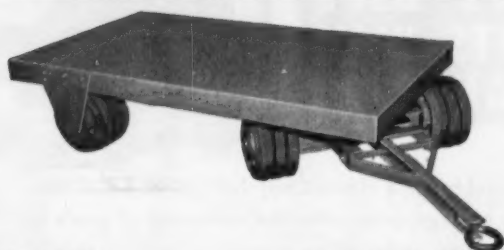
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DIVISION OF AURORA EQUIPMENT CO.

805 Prairie Ave., Aurora, Illinois
Steel Shelving . . . Parts Bins . . . Drawer Units

OHIO

Industrial Trucks & Trailers



NO. 1001

Capacity 20000 lbs.

Size 48" wide x 96" long x 22" high. All welded steel construction with Pressed-On Rubber Tires and Plate Steel Deck. An all purpose heavy duty industrial trailer.

Various Platform Sizes may be furnished.

Heavy Duty Trucks and Trailers to YOUR Specifications. Write for Detailed Information.

THE OHIO GALVANIZING & MFG. CO.
NILES Established 1902 OHIO

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JUNE, 1955

chip-tote®

Here's a way to cut production costs! The Chip-Tote gives you "hands-off" continuous removal of chips, turnings and borings from high production tools. Automatic machine tools can run continuously without shut-down for scrap removal. Chip-Totes available to fit all standard multiple spindle or automatic machine tools. Write today for catalog No. MF-640 and see the advantages available.



**scrap
handling**

hinged steel belting

Here's a continuous belt conveyor made-up of heavy gauge steel links that are joined by high carbon steel rods. A May-Fran hinged steel belt will gather the turnings and borings from a battery of Chip-Totes or you can use the belt to handle hot, heavy or abrasive castings, forgings, metal blanks, or formed metal parts through production. Write today for No. MF-530 and get full details.



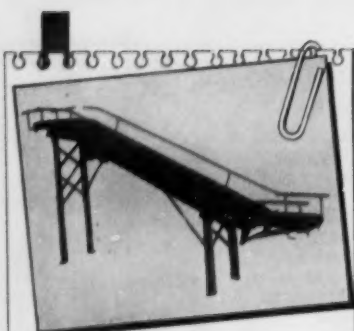
DESIGNERS AND ENGINEERS OF COMPLETE SCRAP HANDLING SYSTEMS

MAY-FRAN

ENGINEERING, INC.

1611 CLARKSTONE ROAD • CLEVELAND 12, OHIO

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good idea!

PUT A "WORK HORSE" TO WORK cutting handling costs for you. This ARR-O-VEYOR Jr. power belt unit will handle almost anything, inclined or horizontal. Is used as booster in gravity lines — in stairways for floor to floor movement — in 101 other applications. See your ARROW agent for specifications and prices.

ANOTHER GOOD IDEA!

Take all your handling problems to an ARROW specialist. Here are just a few:

LOS ANGELES, CALIF.
M. E. Canfield Company
OAKLAND, CALIFORNIA
E. C. Buehrer Assoc., Inc.
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Production Equipment Co.
CHICAGO, ILLINOIS
B. E. Weber Company, Inc.
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INDIANAPOLIS, IND.
C. H. Ellis Company, Inc.
BROOKLINE, MASS.
Robert Abel & Co., Inc.
DETROIT, MICHIGAN
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Skarnes Eng. & Supply Co.
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Full facts on all ARROW power and gravity conveyors. Write to:

arrow
PRODUCTS, INC.

406 Arrow Bldg. 417 Front, N.W. Grand Rapids, Mich.
Circle No. 9 on Reader Service Card
168

No More Bottlenecks:

How production bottlenecks were overcome in the stamping department of an appliance manufacturer is told in a performance report available from The Alvey-Ferguson Co.

Circle 209 on Reader Service Card

Fibre Boxes and Trucks:

Federal Fibre Corporation has published a folder on fibre constructed material handling equipment, including barrels, baskets, hampers, boxes and trucks.

Circle 210 on Reader Service Card

Digs With Power:

Illustrations and explanations of the wide range of uses for the Sherman Power Digger are contained in a booklet prepared by Sherman Products, Inc. Accessories, work range and specifications of the machine are also covered.

Circle 211 on Reader Service Card

Conductor Locations:

An informative booklet on electrical conductor material featuring design data for the location of current conductors may be obtained from Philadelphia Tramrail Company.

Circle 212 on Reader Service Card

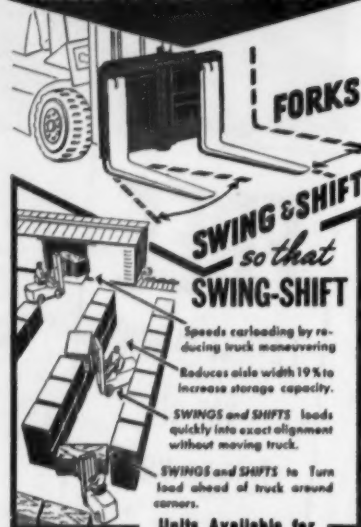
Circle No. 119 on Reader Service Card

HANDLE IT FASTER!

Eliminate Non-Productive Maneuvering with a

SWING-SHIFT UNIT

HYDRAULIC FORK CONTROL
ADDED TO YOUR LIFT TRUCK



Units Available for Hyster, Gorlinger, Canadian Mobile, other makes

See Your Lift Truck Dealer or Write

SWING-SHIFT MFG. CO.

Box 987
LONGVIEW, WASHINGTON

3-5-7½-10-15 ton
CAPACITIES

RENT OR BUY
SILENT HOIST
LIFTRUK
on the
**"DAY-BY-DAY
EARN-ITS-WAY
PLAN"**



If you can reasonably use a Heavy Duty LIFTRUK for at least two hours a day average, to improve the movement of goods in process or reduce materials handling operations, then you should be interested in this unusual "rent-or-pay-as-you-use" plan. Proper cost accounting methods often show that man-hours saved, storage space gained, or time in transit reduced, add up to a profit well above the payments required for LIFTRUK for purchase or rental charges.

Exclusive
**FLUID
DRIVE**

Write for "Earn-Its-Way" Plan to

SILENT HOIST & CRANE CO.

Pioneer Mfrs. of Heavy Duty Materials Handling Equipment

888 63rd Street, Brooklyn 20, N. Y.

Circle No. 110 on Reader Service Card for more information

FLOW



**What you
could do
with**

Magnesium



You hear older men saying,
"Make it heavy! People
think weight means
strength."

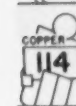
Well . . . you can't kid the
moderns.

Aluminum weighs 50% more
than Magnesium. Anything
that's lifted, pushed, or
motivated-by-power sells bet-
ter and performs better
when it's made of Magne-
sium.



Do you have an idea-in- Magnesium?

B&P engineers have helped
a lot of Magnesium-ideas to
success. B&P has complete
facilities for Magnesium
fabrication and assembly.
Phone or write your inquiry
to B&P. There's no obliga-
tion. Between us, maybe we
can develop a "natural."



A new folder on MAGNE-
SIUM PLATE AND
SHEET will be forwarded
on request.

LIGHTNESS



...PLUS!

**BROOKS and
PERKINS Inc.**

Pioneer Magnesium Fabricators

Rolled Magnesium Plate and Sheet
1944 W. Fort St. • Detroit 16
TAsmoo 5-5900

Circle No. 25 on Reader Service Card
JUNE, 1955

Small Electric Hoists:

Electric hoists with capacities from
250- to 2000-pounds are discussed in a
booklet available from Shepard Niles
Crane & Hoist Corp.

Circle 213 on Reader Service Card

Gives More Underclearance:

Bulletin published by Barrett-Cravens
Co. features the new six inches of lift
incorporated in the Power Ox walkie
electric lift truck. The truck can handle
skids with a higher range of under-
clearance, and easier operation on
grades and ramps is assured, according
to the manufacturer.

Circle 214 on Reader Service Card

Shipping Heavy Products?

Wirebound crates for heavy products
is discussed in a brochure issued by
General Box Company. The highly il-
lustrated booklet shows how engineered
wirebound containers are economically
used to replace costly custom-built
crates in the packing and shipping of
equipment weighing up to several tons.

Circle 215 on Reader Service Card

Attachment Bulletin:

The Raymond Corp. is offering a
bulletin on electric trucks for special
applications. Pictured and described are
attachments designed to operate with
the standard Raymond electric tractor
unit in narrow aisles and confined work
areas.

Circle 216 on Reader Service Card

Instruction Pamphlet:

Instructions for the best use of Multi-
ton roller skids are contained in a
pamphlet available from Stokvis Edera
& Co., Inc. The skids are self-laying
track dollies designed especially for the
movement of machinery and other extra
heavy loads.

Circle 217 on Reader Service Card

Crane Has Built-In Lift:

The crane with the built-in lift is
described in a colorful brochure pre-
pared by Uhrden, Inc. Called Tubar-
crane, the unit features a built-in exten-
sion boom and four-point suspension.

Circle 218 on Reader Service Card

Lift Truck Scales:

Martin-Decker Corporation says in a
colorful release that it can supply nine
models of lift truck scales, to fit any
capacity truck from 2000- to 20,000-
pounds. The scale is said to be accurate,
rugged and reasonably priced.

Circle 219 on Reader Service Card

**TO PEOPLE
WHOSE
PUSHERS ARE
PUSHING
BIG HEAVY CLUNKERS:**



The more dead weight they push . . . the
less of your merchandise gets moved!

You'll get more, faster, safer pushing from
your pushers the day you replace "snail's-
pace" steel and wood pushcarts with B&P's
light, modern

**MINIMAX
Pusharounds**
Made of the lightest weight
structural metal
MAGNESIUM



Shelf
Truck



Merchandise
Marking
Truck



Enclosed
Merchandise
Transfer
Truck

Write or phone B&P today about saving
your Pushmoney with Pusharounds. Tell
us about your uses. We'll adapt our
flexible Standard Models to your needs
. . . or build what you want . . . PUSH-
AROUNDS PAY THEIR WAY . . .
PRONTO!

BROOKS & PERKINS, Inc.

Pioneer Magnesium Fabricators
1944 W. Fort St. • Detroit 16, Mich.
TAsmoo 5-5900

Circle No. 24 on Reader Service Card



GIVES YOU A LIFT IN CUTTING COSTS

'Tugit' is a powerful, speedy tool that lifts and pulls smoothly at any angle. It is a small, light spur-gear hoist — fits any tool box. It's easy to use on close-quarter lifting jobs. A pull of only 40 lbs. lifts a 1-ton load. Accurate spotting is a cinch. Non-kicking handle! The brake acts fast, automatically. Both hooks are safety-type and the chain is super-tough.

For maintenance, for installing pipe and cable, for tightening or joining — whatever the job — save time, effort and money with a 'Tugit'. Made in 1 and 2 ton sizes. Get full details from your "Shaw-Box" Distributor or write for Bulletin 388.



'TUGIT'
HOISTS

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of "Shaw-Box" and "Load Lifter" Cranes, "Buddit" and "Load Lifter" Hoists and other lifting specialties. Makers of "Ashcroft" Gauges, "Hancock" Valves, "Consolidated" Safety and Relief Valves, "American" and "American-Microseal" Industrial Instruments, and Aircraft Products.

Circle No. 81 on Reader Service Card
170

Battery Specifications:

C&D Batteries, Inc. is offering a brochure which gives specifications and details on PlastiCell industrial batteries.

Circle 220 on Reader Service Card

Automatic Merchandising:

Dennison Manufacturing Company has prepared a catalog which gives details on what is said to be a new concept of automatic merchandising. Key to the system is a Print-Punch marking machine.

Circle 221 on Reader Service Card

Engineering Details:

Complete engineering details and other information concerning the use and installation of its hydraulic adjustable ramps for loading docks are featured in a booklet by Rowe Methods, Inc.

Circle 222 on Reader Service Card

Flat Steel Strapping:

Gerrard Steel Strapping Division offers a folder which gives details on a heavy duty flat steel strapping system. The strapping can be used for carload, truckload, pallet, unit reinforcement.

Circle 223 on Reader Service Card

Circle No. 97 on Reader Service Card

MONOFLO

The exclusive
ROTATING CABLE CONVEYOR

Carries loads directly where you want them—up, down, around. No return loop necessary! Lowest cost power conveyor on the market! Simple installation—standard parts—shipped same day order received.

UNIT LOADS to 30 lbs.
SPEEDS to 12 ft./min.
LENGTH to 150 feet



Conveys garments, parts, through ovens, spray, assembly, inspection. Returns empty work carriers.

Write for illustrated catalog



M-H STANDARD CO.

511 COMMUNIPAW AVE. JERSEY CITY 4, N. J.

VERSATILE BULK FEEDING... from a trickle to a torrent with VELOFEEDER

A mechanical vibrating feeder especially designed for all materials such as sugar, bran, pellets, feeds, chemicals, and grains at lower cost, higher efficiency.

Here's Why!

Higher Output—300 to 50,000 lb./hr. hard granular materials; 300 to 30,000 lb./hr. soft ground materials.

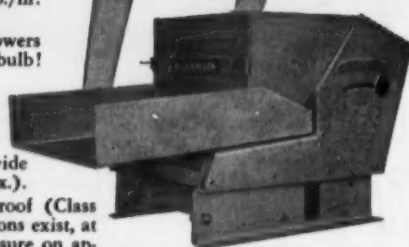
Lower Power Needs—1/8 hp. motor powers unit—inexpensive as a 100-watt light bulb!

Smaller Space Needs—35 inches long, 17 1/2 inches wide, 19 inches high. Standard vibrating tray 16 inches wide—stainless steel when required.

Easier Control—simple adjustment over wide operating range (near 0 to 50 fpm. max.).

Safer Operation—motor is explosion-proof (Class 2, Group G), where hazardous conditions exist, at slight extra cost. Complete dust enclosure on application.

Less Vibration—working frequency is 1850 vibrations per minute; little or no vibration is transmitted to mounting installation (mounts with only 4 bolts!).



If you're interested in better bulk feeding at lower operating cost, write for Bulletin 5302 with complete specifications and drawing.

1093

Richardson SCALE COMPANY, Clifton, New Jersey

Atlanta • Boston • Buffalo • Chicago • Detroit • Houston • Memphis • Minneapolis
New York • Omaha • Philadelphia • Pittsburgh • San Francisco • Wichita • Montreal
Toronto • Havana • Mexico City • San Juan

MATERIALS HANDLING BY WEIGHT SINCE 1902

Circle No. 102 on Reader Service Card for more information

FLOW

Shell Molding System:

Booklet prepared by Link-Belt Company gives details on a fully integrated, automatic shell molding system capable of producing up to 240 quality molds per hour.

Circle 224 on Reader Service Card

Engine Hour Meter Suggestions:

Publication by John W. Hobbs Corp. gives many ideas on how Hobbs engine hour meters may be used profitably. Construction and farm equipment are highlighted.

Circle 225 on Reader Service Card

Fills and Weighs Bags:

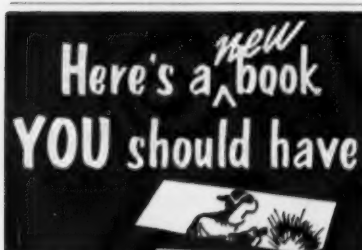
Data sheet prepared by Richardson Scale Co. describes and illustrates the company's bagging scale which fills and weighs bags in capacities of 50 to 140 pounds.

Circle 226 on Reader Service Card

Pneumatic Conveying:

Young Machinery Company has released a four page bulletin covering its Transvair pneumatic conveying system. Many applications and advantages are described.

Circle 227 on Reader Service Card



JUST OFF THE PRESS

An Easy-to-use Reference Manual

Provides necessary one-the-spot information about many every day Arc Welding problems.

Contains 172 pages of practical welding data of value to department heads, supervisors, inspectors and welding operators.

Single copies \$1.00 each. Special discounts on orders of 25 or more. Attach check or money order to coupon below.

Industrial Book Co.
1240 Ontario St.
Cleveland 13, Ohio

Check or Money order for \$..... is attached. Please send me..... copies of your POCKET MANUAL OF ARC WELDING

Name

Address

City and State

JUNE, 1955

Circle No. 53 on Reader Service Card for more information

Get a



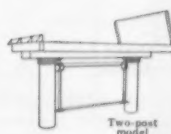
from FIELD...

LOAD-O-MATIC

Effortlessly, smoothly, and quickly, the Field LOAD-O-MATIC automatically lifts loads up to 20,000 lbs. from loading dock to floor of truck, whether truck is above or below dock. The LOAD-O-MATIC drastically cuts loading time. Always working on the level eliminates spilling, prevents accidents. Two models available: two-post for loads 10,000-20,000 lbs.; one-post, under 10,000. LOAD-O-MATIC can be installed at ground level with rear safety barrier to prevent run-off... For details, write for bulletin.

FIELD ENGINEERING PRODUCTS CO.

66 FOOTE AVENUE · JAMESTOWN, N. Y.



Interesting group of 6 NEFF & FRY BINS

You see four bins in the photograph. There are two more of the 12 ft. dia. bins between the 20 ft. ones. All six are used for handling glass batch materials—lime, feldspar, silica sand, cullet, etc.

This is an example of the bins we construct all over North America for handling and storing scores of flowable bulk materials. In our long experience, we have designed structures and accessories to meet almost every conceivable situation.

The distinctive feature of a Neff & Fry bin is the diagonal, interlocking Super-Concrete Stave. Hoops of heavy galvanized steel rods cross the diagonals of two staves in each vertical tier. As many intervening hoops are applied as needed to give a safety



factor of five to one.

Our bins do not spall, rust, rot, or burn. They do not require face-lifting.

You are invited to communicate with us for literature and specific data.

THE NEFF & FRY CO.

110 ELM ST. • CAMDEN, OHIO

NEFF & FRY

SUPER-CONCRETE STAVE STORAGE BINS

Circle No. 91 on Reader Service Card for more information

CESCO'S TOTE-SHOP BOXES

DO YOUR ROUGH/TOUGH JOB
EFFICIENTLY • EASILY
ECONOMICALLY

on Conveyors • Pallets
Hand Trucks • Skid Platforms
or what have you
RUGGED CONSTRUCTION • PRIME MATERIALS



Model #WB (Wood Bottom)
Stack sizes will accommodate loads up to 200 lbs., possibly greater, depending upon material packed and handling method.

MODEL WB

STANDARD SIZES AVAILABLE FROM STOCK
(Prices not - F.O.B. Northampton, Mass.)

Lots of	WB-1	WB-2	WB-3
2000	\$1.96	\$2.14	\$2.28
1000	1.99	2.17	2.31
500	2.02	2.20	2.34
250	2.07	2.25	2.39
100 Min.	2.12	2.30	2.44

Model	Size	Length	Width	Depth	Weight
WB-1	1 D.	14 1/2"	11 1/2"	9"	11 1/2 lbs.
WB-2	1 D.	18"	11 1/2"	9"	13 lbs.
WB-3	1 D.	20"	11 1/2"	9"	14 lbs.



Solve your Storage and Handling Problems with our Tote Boxes, Trays and Pallets. Write today for quotations on special sizes. Special Marking Facilities, for identification purposes, are available in various colors and numbers. Please submit detailed specifications.



CESCO CONTAINER CO.
Factory: NORTHAMPTON, MASS.
General Office:

Dept. (H) 475 Fifth Ave. New York 17, N.Y.

Circle No. 30 on Reader Service Card
172

Control Devices:

General Electric Company has published a 68 page catalog on control devices which features a special section on selection of motor control.

Circle 231 on Reader Service Card

Platform Truck Ideas:

What you can do with a platform truck is told in a single sheet release prepared by Nutting Truck and Caster Company.

Circle 232 on Reader Service Card

Automatic Bulk Handling:

Gifford-Wood Company offers a reprint of a technical article that illustrates and describes a new bulk handling system for automatically conveying coke and slag from storage to cupola furnaces at a rock-wool manufacturing plant.

Circle 233 on Reader Service Card

Hydraulic Power Steering Systems:

A well-illustrated catalog published by Vickers Incorporated presents the company's new line of oil-hydraulic power steering components and shows typical applications of the equipment.

Circle 234 on Reader Service Card

Circle No. 92 on Reader Service Card

the NEW LONDON "Trough Belt" CONVEYOR "TEAM" for

FAST Undercar Unloading
LOW COST • LIGHT
PORTABLE • VERSATILE
DEPENDABLE

PRICE:
14' Undercar Model \$878.00
30' TB Conveyor \$887.00

SAND, HAYDITE, LIMESTONE, SALT, other small size bulk materials • Gas or electric—12" trough belt

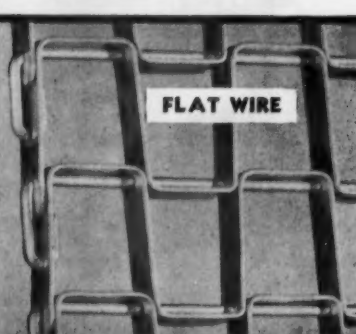
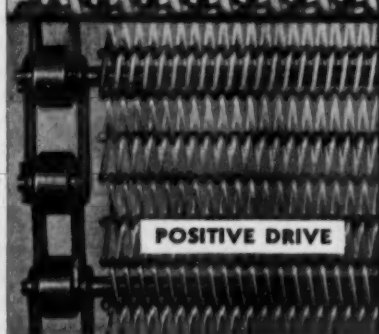


Write for Catalog
NEW LONDON ENGINEERING CO.
Dept. F • New London, Wisconsin



Process Belts

No matter what your product or process is, there's an Ashworth Belt design and wire size to help you carry it more efficiently and more economically.



KEEP YOUR PRODUCT ON THE MOVE WITH ASHWORTH PROCESS BELTS

ASHWORTH BROS., INC.
METAL PRODUCTS DIV. • WORCESTER, MASS.

Sales
Engineers:

Buffalo • Chattanooga • Chicago • Cleveland • Detroit • Kansas City • Louisville
Los Angeles • New York • Philadelphia • Pittsburgh • Rochester • Seattle • St. Paul
Toronto • Canadian Rep., PEKOVER'S LTD. • Toronto • Montreal

WRITE FOR
ILLUSTRATED CATALOG
P82



Circle No. 10 on Reader Service Card for more information

FLOW

Were You at the Show?

Whether you were at the show, or not . . .

**Don't Miss FLOW's
Complete Coverage of
the Sixth National Materials
Handling Exposition**

Starting on page 97

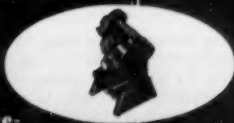
Use the special Reader Service Card bound into the issue between pages 96 and 97 to get complete details on all exhibits at the show.

NEW MANUFACTURING TECHNIQUES
DRASTICALLY CUT COSTS OF . . .

3-DIMENSIONAL SCALE MODELS



Complete plant layouts
... standard or special
machinery and miscellane-
ous equipment available. Over
12,000 items in stock. Prompt deliveries.



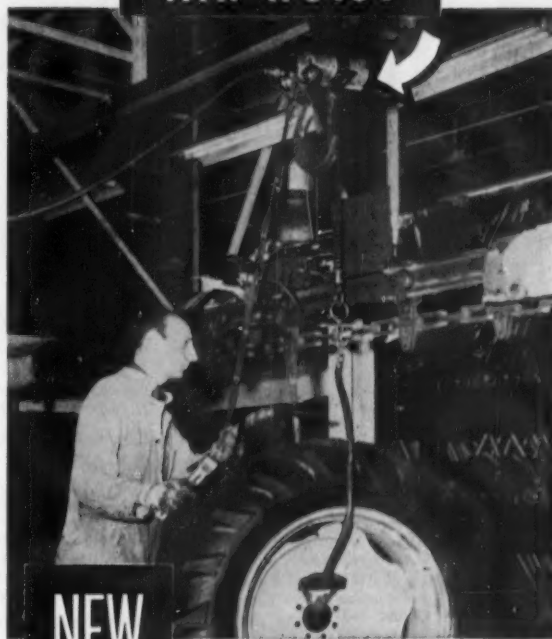
from
\$1.25
each

VISUAL PRODUCTION
PLANNING, INC.

131 Sixth Street, Connellsville, Pa.

Circle No. 132 on Reader Service Card for more information
JUNE, 1955

KELLER AIR HOIST



NEW

**Speeds and Capacities
Give Wider Range
of Usefulness**

Keller Air Hoists are now available with new gearing, and in link chain models to provide greater versatility of application.

MODEL	CAPACITY	SPEED	WEIGHT
86-2V20	2000 lb	19 fpm	78 lb
86-2V20L*	2000 lb	19 fpm	78 lb
86-2V10	1000 lb	35 fpm	78 lb
86-1V10	1000 lb	19 fpm	28 lb
86-1V10L*	1000 lb	19 fpm	28 lb
86-1V5A	500 lb	35 fpm	28 lb
86-1V3	300 lb	80 fpm	28 lb

* Models with link chains

KELLER AIR HOISTS HAVE THESE ADVANTAGES:

- ▶ **CANNOT BURN OUT** from overload or extended stalling
- ▶ **LIGHT WEIGHT** in relation to its capacity . . . easy to move and hang
- ▶ **LOW MAINTENANCE** . . . rugged air motor is not affected by dust or fumes
- ▶ **CONTROLLED SPEED** . . . from a creep to maximum aids spotting of load



KELLER TOOL

DIVISION OF **GARDNER-DENVER**

1321 FULTON ST., GRAND HAVEN, MICH.

Circle No. 75 on Reader Service Card for more information

173



DARNELL CASTERS & WHEELS

Always **SWIVEL**
and **ROLL**

RUBBER TREADS . . . a wide choice of treads suited to all types of floors, including Darnelloprene oil, water and chemical-resistant treads, make Darnell Casters and Wheels highly adapted to rough usage.

RUST-PROOFED . . . by the Udylite process, Darnell Casters give longer, care-free life wherever water, steam and corroding chemicals are freely used.

STRING GUARDS . . . Even though string and ravelings may wind around the hub, these string guards insure easy rolling at all times.

LUBRICATION . . . all swivel and wheel bearings are factory packed with a high quality grease that "stands up" under attack by heat and water. Zerk fittings are provided for quick grease-gun lubrication.

A TYPE AND SIZE
FOR EVERY PURPOSE



Free **MANUAL**

**DARNELL CORPORATION,
LTD.**

BOWNEY (LOS ANGELES COUNTY) CALIFORNIA
40 WALKER STREET, NEW YORK 13, NEW YORK
34 NORTH CLINTON STREET, CHICAGO 4, ILLINOIS

Circle No. 40 on Reader Service Card
174

About Electric Trucks:

Electric trucks for all purposes are pictured and discussed in an eight-page condensed catalog available from The Elwell-Parker Electric Company.

Circle 235 on Reader Service Card

Grab Bucket Crane:

A 24 page bulletin is available from Harnischfeger Corporation which describes the P&H grab bucket crane. Contained in the literature are suggestions on selecting the proper type crane for a specific service.

Circle 236 on Reader Service Card

Modern Diesel Design:

A 20-page bulletin available from Ingersoll-Rand gives details on modern diesel design incorporated in the models S and SS heavy-duty engines.

Circle 237 on Reader Service Card

For Bulk Storage:

A 20 page general catalog has been published by Sturdi-Bilt Steel Products, Inc. Among products featured is the firm's new Bulk Bin which provides versatile storage space without bolts, nuts or tools.

Circle 238 on Reader Service Card

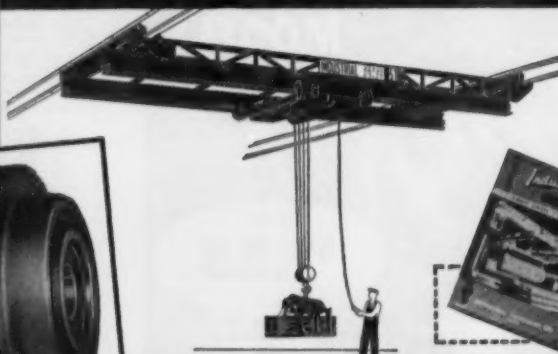
Circle No. 22 on Reader Service Card

BOWERS BATTERIES

*Always
Better*

BOWERS BATTERY & SPARK PLUG CO., READING, PA.

BETTER VALUE Industrial CRANES FEATURE FORGED STEEL WHEELS



WRITE
FOR
CATALOG

Long lasting forged steel, heat treated, crowned tread wheels are **STANDARD** equipment on all Industrial underhung cranes. Together with the patented Industrial removable axles these wheels can be changed on the runway in minutes, if ever necessary.

Many other high quality features make Industrial Cranes your best buy in the long run!

Consult with Industrial Crane & Hoist Corp. for information on **BETTER VALUE CRANES!**

FSW 155



INDUSTRIAL CRANE & HOIST CORPORATION

1531 SOUTH PAULINA STREET

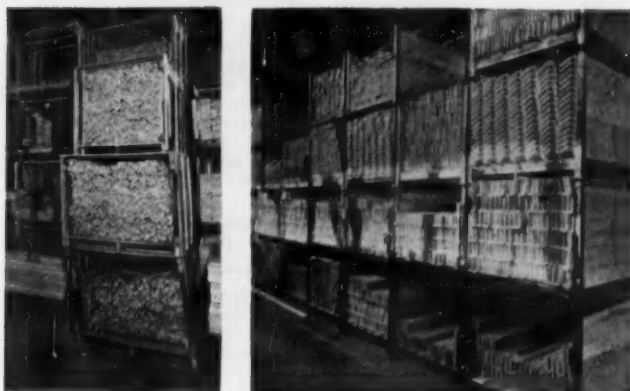
CHICAGO 8, ILLINOIS

Overhead Cranes • Jib Cranes • Monorail Systems • Crane Runways
Representatives in Principal Cities

Circle No. 71 on Reader Service Card for more information

FLOW

Stacking Higher With Safety



BEFORE AFTER

Want to stack to greater heights with rigidity and safety? Use the Stak-Pal system, says C. E. Robinson Company. The system consists of stacking-type pallets supported by heavy square and rectangular steel tubing, with all joints welded. The basic unit is designed with one, two, or six center support angles, with capacities ranging from 1000 to 3000 pounds. Both two-way and four-way entry is available, and corner posts are constructed to fit snugly and safely. An outstanding example of improved storage is shown in the accompanying photos of a warehouse before and after the installation of Stak-Pals.

Circle No. 187 on Reader Service Card for more information

Work EASIER — Work SAFER with



Model S-7M
Maintenance Truck

Send for Complete Catalog
of ROL-AWAY Specialized Trucks



- Cut down costly accidents
- Cut down costly man hours

Every Rol-Away truck is designed not only for greater efficiency—but for the safety of workmen. Rol-Away ladder trucks cannot tip, slide or roll when in use. Ladders rest solidly on floor—steps have safety treads. Whether it's heavy loads at floor level or working aloft at high level—Rol-Away trucks are designed for safety.

A truck for every job. Rol-Away specialized hand trucks are made for one-man operation of maintenance, warehousing and handling all types and shapes of loads.



Model J
for Large Flat Loads



Model B-7T
Washing Truck



Model BH-6
Warehouse Truck

ROL-AWAY TRUCK MFG. CO., INC.

6143 S. E. Foster Road

Portland 6, Oregon

Circle No. 103 on Reader Service Card for more information
JUNE, 1955

TEAR OUT AND MAIL!

YES! I would like
to know more about



Special Motor Designs

☐ If your sales engineer will give
me a ring, I'd like to talk to him
AND IN THE MEANTIME, you
might send me your bulletin on
Standard

- ☐ SQUIRREL CAGE
 - ☐ BRAKEMOTORS
 - ☐ WOUND ROTOR
 - ☐ D-C MOTORS
- Generators, M-G Sets

My name is _____

They call me a _____
(title)

At _____
(company)

_____ (street address)

_____ (city) _____ (zone) _____ (state)



MOTOR DIVISION

Miehle Printing Press and Mfg. Co.
221 Bloomfield Ave., Bloomfield, N. J.

Circle No. 116 on Reader Service Card
175

FOR SALE

50 Used—Barrett-Cravens hydraulic lift trucks type "FXK"—3500# capacity—lo-hite 10½"—lift 3"—25" x 76" overall—some units have hard rubber wheels—others "Barcrava" wheels—units all reconditioned—Priced at \$45.00 each for quick sale. Also: 40 Used—Mercer Trailers 36" x 60" x 13" high—top is hardwood covered with 15 ga. steel—deck and sides are steel. Front wheels 2½" x 6" ball bearing swivel—Rear wheels 2" x 10" All wheels are "Textolite" with ale-mite fittings. Weight 270# each—Priced at \$32.50 each (original cost over \$120.00 each.) Units almost new—Call or write—GLOBE TRADING COMPANY—1815 Franklin Street—Detroit 7, Michigan—Phone WO 1-8277.

STANDARD KNAPP FULLY AUTOMATIC CASE GLUER #429

Model #429, top and bottom case gluer, with Model #636 compression unit. Equipped with power height and width adjust, for quick change in case size. Adjustable range for case size; minimum; 16" long by 11" wide by 6½" high—maximum; 47" long, 20" wide, 26" high. Compression unit 36" long, adjustable automatic skip gap. ¾" strip glue application. Current price, new; \$10,975.00. Highest reasonable offer accepted. Write c/o FLOW Box 6455.

CLASSIFIED ADVERTISING

FOR SALE

CXB-6M & CXF-10M BAKER CRANES, w/battery or gas-electric power. Fully rebuilt. \$4500 & \$5500 each. Harry W. Zickert, 1122 Charlotte, San Gabriel, Calif. CU-33-616.

HELP WANTED

Mid-West Conveyor Manufacturer has opening for qualified Conveyor Engineer possessing the following qualifications—Thorough grounding in mechanics (statics and Kinetics), Alert, Self-starter, Cost-conscious, Able to get along with others, Dependable, Self-reliant, Able to develop standard of design, and Willing to do a moderate amount of traveling for service purposes. Reply in confidence; write c/o FLOW, Box 6355.

PLANT LAYOUT and materials handling engineer needed for position in established, rapidly-growing electronics company. Opening immediate, position permanent. Prefer graduate industrial or mechanical engineer, but will consider equivalent experience. Salary will be commensurate with experience. Liberal benefits. Community noted for fine schools, cultural and recreational facilities. Address Mr. Fred Ciambone, Telephone Division, Stromberg-Carlson Company, Rochester 3, New York.

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FORK TRUCK SALESMAN wanted for Wisconsin factory representative. Well-known line of fork trucks and other materials handling equipment. Excellent opportunity for resourceful, experienced producer on an incentive basis. Submit particulars, qualifications and references. Write c/o FLOW Box 6255.

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MICHIGAN MANUFACTURER HAVING LIQUIDATED MAJORITY STOCK INTEREST IN 25-MAN OPERATION, SEEKS position of responsibility with top-flight company. Qualified and capable, best of references with wide acquaintances in the Industrial and Business world. Age 35, family responsibility. Capable of working with top management. Sales, Purchasing, Packaging and Materials Handling Engineering, advertising or liaison. Willing to travel or relocate. Available within next 30 days. Write P. O. Box 439, Battle Creek, Michigan.

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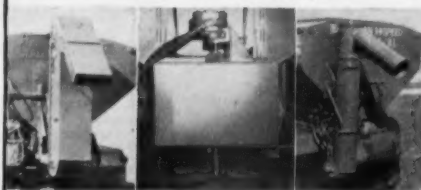


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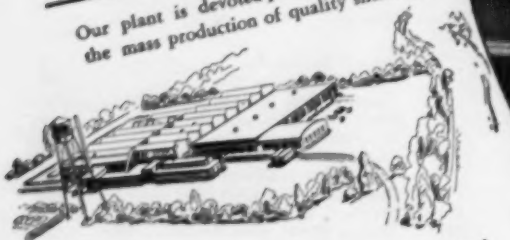


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- One piece bin type upright—offers I beam strength. Speeds assembly.



SHELF BRACKETS

- Especially designed shelf-brackets make each shelf independently adjustable.



FLOOR ANGLE

- Bottom shelf support and floor angle permits assembly in vertical position; evenly distributes floor surface load.



HEAVY DUTY SHELVES

- Shelves have reinforcing bar imbedded into front and rear flanges and returned into the end flanges where they engage the uprights.

PLUS . . . these components which give added strength and quality:

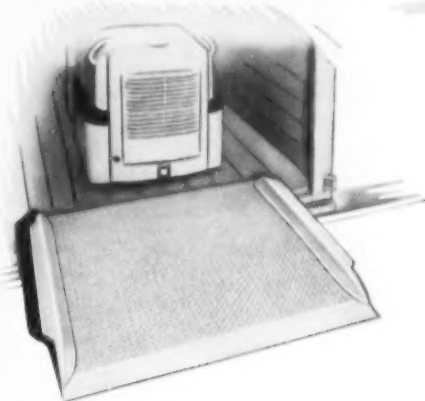
- One piece back
- Patented snap-on dividers
- Patented snap-on bin fronts
- Shelves coped to fit uprights—permits full use of shelves and flush appearance

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Tire Damage Like This



... CAN'T HAPPEN WITH DOCK BOARDS LIKE THIS!



THERE IS A BIG DIFFERENCE IN DOCK BOARDS

MAGLINER DOCK BOARDS PREVENT DAMAGE TO POWER TRUCK TIRES

HERE ARE MORE REASONS

Engineered for Your Specific Operations

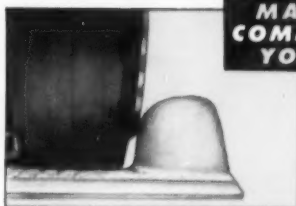
1. Engineered for your specific dock conditions—from data taken right at your loading dock.
2. Engineered specifically for your equipment and loads—to insure maximum service, efficiency, and safety.
3. Engineered specifically for your operational requirements—after a complete on-the-job analysis by a Magliner dock board specialist.

Gives You These Outstanding Design-Construction Features

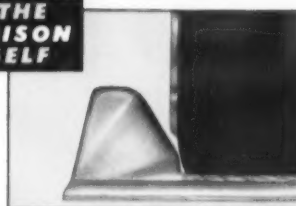
4. Triple strength curb ends—of special-alloy, high strength magnesium... double tapered for wide angle turns. An exclusive Magliner feature.*
5. Positive, adjustable drop lock—another exclusive Magliner feature.**
6. Crowned, so that the edges bear snugly against the dock and carrier—to accommodate varying differences in height.
7. Safety factors in both design and construction to fully meet your requirements... and provide needed insurance for safe, dependable, and economical long-life service.

HERE ARE THE FACTS!

MAKE THE COMPARISON YOURSELF



ORDINARY SIDE CURBS ARE MADE LIKE THIS... permitting the wheel rim of power trucks to bear against the side curb! These repeated contacts create sharp, jagged edges in the curb, which in turn gouge and cut tires, causing costly damage. In addition, side curbs are weakened and the dock board's service life is greatly reduced.



MAGLINER TIRE-SAVER® SIDE CURBS ARE MADE LIKE THIS... They prevent wheel rims from coming into contact with the side curb. This exclusive Magliner feature* eliminates costly tire replacements and prolongs dock board service life. This important, money-saving feature is available only with Magliner Dock Boards.

*Pat. Pend.

8. Added strength through stress relieving—an extra safety advantage that can't be seen, but it's important.

9. Magnesium light! Magnesium strong! Magnesium safe! Made of the world's lightest structural metal—for easy one-man handling, maximum safety, and reliable service.

PLUS...

These added safety and convenience features:

10. Beveled edges (maximum 10° slope) facilitate movement of valuable loads on

and off the dock board, avoiding hazardous load jar... eliminating equipment damage and load loss.

11. Comfortable, roomy hand grips—sealed to exclude moisture. Optional full length hand rails for added safety and convenience.

12. Specially designed, flush-type lifting hooks to facilitate moving the dock board by power truck. (Offered as optional equipment.)

**Pat. No. 2659914

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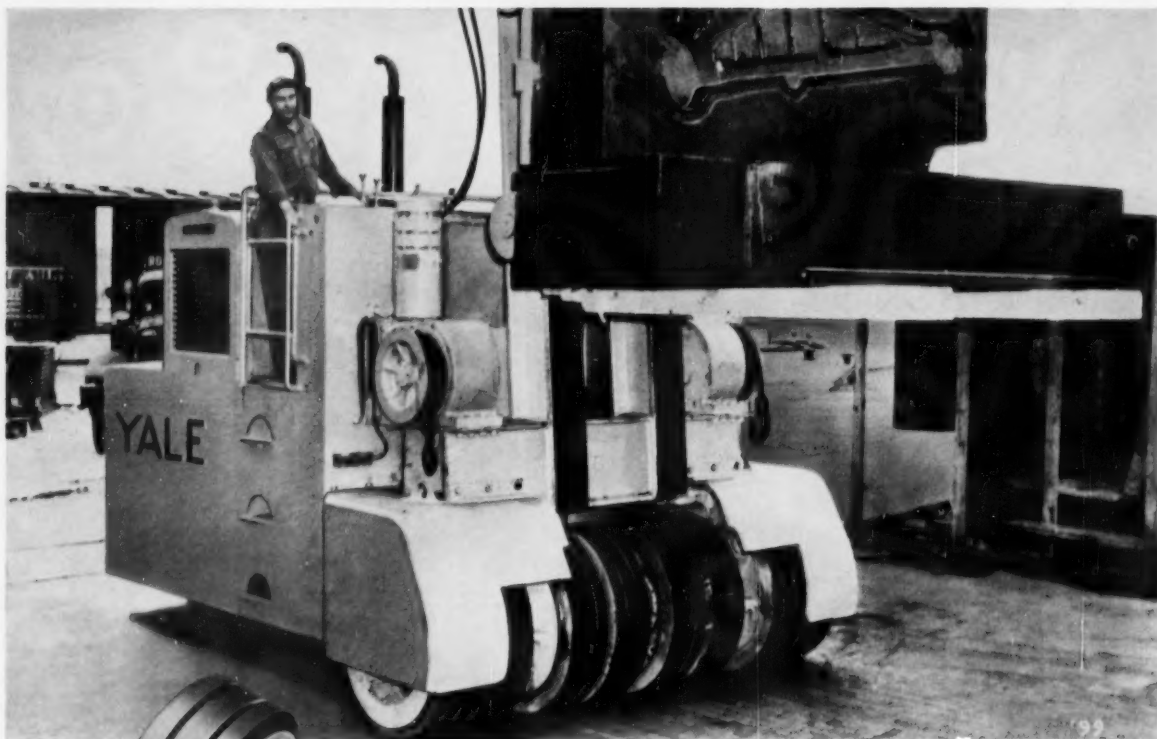
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Solid

All-Service Tread
Xtra Cushion

All-Weather
Tread

Rib All-Weather
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(Tubeless or
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